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Measuring Social Capital in Italy: An Exploratory Analysis [*]

Fabio Sabatini[**]

Abstract

The aim of this paper is to trace a map of Italian local social capital endowments. It focuses on the "structural" dimension of the concept, as identified with social networks. The analysis is based on a dataset collected by the author including about two hundred indicators of five main social capital dimensions: strong family ties, weak informal ties, voluntary organizations, civic awareness, and political participation. 51 key variables are selected for performing principal component analyses both on each of the five groups and on the entire dataset, in order to build latent indicators for every single social capital's dimension and for the concept as a whole. Finally, a multiple factor analysis is run on the entire dataset, in search of a single synthetic measure of social capital. A clear distinction emerges between bonding social capital, shaped by strong family ties, and bridging and linking social capital, shaped by weak ties among friends, neighboors and members in voluntary organizations. Areas characterized by high levels of bonding social capital can suffer from a lack of bridging and linking ties. The study provides a valuable synthetic indicator capturing the particular configuration of social capital which the literature generally associates with positive economic outcomes.

JEL Classification: A12, O10, O18, R11, Z13

Keywords: Social capital, Social networks, Economic development, Principal component analysis, Multiple factor analysis.

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1. Introduction

Social capital represents one of the most popular metaphors in the current social science debate. Since the publication of the study on the Italian regions carried out by Putnam, Leonardi and Nanetti in 1993, the Italian case is particularly popular in the literature on cultural and social structural factors of economic growth. This study identified the core component of social capital with civil society associations, which prospered, along with democracy and economic growth, in the Northern regions as opposed to the South.

The aim of this paper is to map Italian local social capital's endowments again, attempting to take into the appropriate account new insights provided by theoretical and empirical research during the last decade. The analysis focuses on the "structural" components of social capital, which are here identified with social networks. Following Fukuyama (1999), and differently from great part of the empirical literature, this paper considers trust as as an epiphenomenon, arising as a result of social capital, and not constituting social capital itself. This assumption is due to the wide heterogeneity of social networks, which, according to their nature and scope, can in turn nurture or hamper human, social, and economic development.

The study is based on a dataset collected by the author including about two hundred indicators of five main social capital dimensions: strong family ties, weak informal ties, voluntary organizations, civic awareness, and political participation. Rough data are drawn from a set of multipurpose surveys carried out by the Italian National Institute of Statistics (ISTAT) on a sample of 20 thousand households between 1998 and 2002. This paper selects 51 key variables, and performs principal component analyses both on each of the five groups and on the entire dataset, in order to build latent indicators for every single social capital's dimension and for the concept as a whole. Finally, a multiple factor analysis is run on the entire dataset, in search of a single synthetic measure of social capital. The main findings of the empirical analysis can be summarized as follows: a clear distinction between two types of networks emerges. The former is shaped by strong family ties, and corresponds to what the theoretical literature generally calls bonding social capital. The latter is shaped both by weak ties among friends and neighboors and by formal ties linking together people coming from different social backgrounds within the boundaries of voluntary organizations. Such networks, corresponding to what the literature often terms "bridging" and "linking" social capital, tend to juxtapose each other in the Italian regions.

Regional endowments of the two types of social capital reveal very different. Areas characterized by higher levels of bonding social capital can suffer from a lack of bridging and linking social capital.

Even if strong ties play an important role in improving well-being, weak ties are generally more relevant to the purposes of economic development, in that they connect people belonging to

different social groups, providing access to informations and opportunities that would not be available within the narrow boundaries of familiar networks. As pointed out by Granovetter (1973), «No strong tie is a bridge ... Whatever is to be diffused can reach a larger number of people, and travel greater social distance … when passed through weak ties rather than strong» (Granovetter, 1973, 1365-1366)[1].

The contribution of this paper to the social capital literature is twofold. Firstly, it builds a new framework for measurement, providing a single, synthetic, indicator capturing that particular configuration of social capital which the literature generally associates with positive economic outcomes. Such a measure, which I call "developmental social capital" can be adopted as a suitable point of departure for deeper empirical investigations on social capital's effects in terms of growth, development, and well-being. Secondly, my findings suggest that, differently from what to date has been done by most cross-country studies, we have to be very cautios in carrying out international comparisons laying just on a single basic indicator (like trust levels).

The remainder of the paper is organised as follows. Section two introduces the concept of social capital and underlines its relevance to economics through a brief survey of the literature. Section three carries out a critical discussion of some measurement issues, pointing out the main weaknesses of the empirical literature on social capital. Section four briefly describes the work of Putnam, Leonardi and Nanetti (1993), and provides an outline of the adopted methodology. Sections from five to eight present the results of the empirical investigations carried out, respectively, on each group of variables and on the entire dataset. The survey is closed by some concluding remarks and guidelines for further researches.

2. Defining social capital and its relevance to economics

The concept of social capital has a long intellectual history in the social sciences, but has gained celebrity only in the nineties, due to Bourdieu's (1980, 1986), Coleman's (1988, 1990) and Putnam's (1993, 1995) seminal studies[2]. Bourdieu identifies three dimensions of capital each with its own relationship to the concept of class: economic, cultural and social capital. Bourdieu's idea of social capital puts the emphasis on class conflicts: social relations are used to increase the ability of an actor to advance her interests, and social capital becomes a resource in the social struggles: social capital is «the sum of the resources, actual or virtual, that accrue to an individual or group by virtue of possessing a durable network of more or less institutionalized

[1] In the sociological literature, the concept of "bridge" is commonly used to describe «a line in a networks which provides the *only* path between two points» (Harary, Norman and Cartwright, 1965, 198).

[2] For a survey on social capital definitions and a brief intellectual history of the concept, see Sabatini (2004).

relationships of mutual acquaintance and recognition» (Bourdieu and Wacquant, 1986, 119, expanded from Bourdieu, 1980, 2). Social capital thus has two components: it is, first, a resource that is connected with group membership and social networks. «The volume of social capital possessed by a given agent ... depends on the size of the network of connections that he can effectively mobilize» (Bourdieu 1986, 249). Secondly, it is a quality produced by the totality of the relationships between actors, rather than merely a common "quality" of the group (Bourdieu 1980). At the end of the 80s, Coleman gave new relevance to Bourdieu's concept of social capital. According to Coleman, «Social capital is defined by its function. It is not a single entity, but a variety of different entities, with two elements in common: they all consist in some aspect of social structures, and they facilitate certain actions of actors within the structure» (Coleman, 1988, 98). In the early 90s, the concept of social capital finally became a central topic in the social sciences debate. In 1993, Putnam, Leonardi and Nanetti carried out a famous resarch on local government in Italy, which concluded that the performance of social and political institutions is powerfully influenced by citizen engagement in community affairs, or what, following Coleman, the authors termed "social capital". In this context, social capital is referred to as «features of social life-networks, norms, and trust, that enable participants to act together more effectively to pursue shared objectives» (Putnam, 1994, 1). Like other forms of capital, social capital is productive, making possible the achievement of certain ends, that in its absence would not be possible. But, in Coleman's words, «Unlike other forms of capital, social capital inheres in the structure of relations between actors and among actors. It is not lodged either in the actors themselves or in physical implements of production» (Coleman, 1988, 98). The use of the term "capital" is criticized by several authors belonging to the field of economics, in that it refers to things that can be owned. For example, Bowles and Gintis (2002) sustain that the term "community" would be more appropriate, because it «better captures the aspects of good governance that explain social capital's popularity, as it focuses attention on what groups *do* rather than what people *own*» (Bowles and Gintis, 2002, 422)[3]. By "community" the authors mean a group who interact directly, frequently and in multi-faceted ways.

The cited perspectives on social capital are markedly different in origins and fields of application, but they all agree on the ability of certain aspects of the social structure to generate positive externalities for members of a group, who gain a competitive advantage in pursuing their ends.

[3] This point is stressed by Arrow (1999), who sustains that "capital" is something "alienable", that is, its ownership can be transferred to one person to another. According to Arrow, it is difficult – as with human capital – to change the ownership of social capital. For other skeptical views on social capital, see Solow (1999), Fine (2001), Durlauf (2002), and Harriss (2002).

According to the mainstream economic theory, social capital exerts its influence on well-being by affecting, positively or not, the individuals' ability to maximize their objective functions. From this point of view, social capital can be considered as a particular kind of intermediate good, acting as an input for the production of assets entering as arguments in the agents' utility and production functions (Becker, 1974, 1996). For firms, social capital improves productive capabilities. A social environment rich of participation opportunities, allowing people to meet frequently, is a fertile ground for nurturing shared values and social norms of trust and reciprocity. The likelihood of repeated interactions among agents grows, increasing reputation's relevance. The better diffusion of informations and the higher opportunity cost of free-riding make the agents' behaviour more foreseeable and causes an uncertainty reduction. Therefore, an increase in trust-based relations reduces the average cost of transactions, just as an increase in physical capital reduces the average cost of production. (Paldam e Svendsen, 2000, Routledge e von Amsberg, 2003, Torsvik, 2000, Zak e Knack, 2001). At the aggregate level, this mechanism may influence the economic performance and the process of development, providing a credible explanation for growth differentials among regions with similar endowments in terms of the other forms of capital (Cole, Mailath and Postlewaite, 1992, Johnson and Temple, 1998, Temple, 2001, Guiso, Sapienza and Zingales, 2004).

3. The problem of measuring social capital: a critical review

Despite the immense amount of research on it, the definition of social capital has remained elusive. From a historical perspective, one could argue that social capital is not a concept but a *praxis*, a code word used to federate disparate but interrelated research interests and to facilitate the cross-fertilization of ideas across disciplinary boundaries. As pointed out by Brown and Ashman (1996), one of the primary benefits of the idea of social capital is that it is allowing scholars, policy makers and practitioners from different disciplines to enjoy an unprecedent level of cooperation and dialogue. While conceptual vagueness may have promoted the use of the term among the social sciences, it also has been an impediment to both theoretical and empirical research of phenomena in which social capital may play a role. On this regard it is possible to observe that the problems suffered by social capital empirical studies are, at some level, endemic to all empirical work in economics. Heckmann (2000) states that the establishment of causal relationships is intrinsically difficult: «Some of the disagreement that arises in interpreting a given body of data is intrinsic to the field of economics because of the conditional nature of causal knowledge. The information in any body of data is usually too weak to eliminate competing causal explanations of the same phenomenon. There is no mechanical algorithm for producing a set of "assumption free" facts or causal estimates based on those facts» (Heckman, 2000, 91). However, according to Durlauf (2002)

«The empirical social capital literature seems to be particularly plagued by vague definition of concepts, poorly measured data, absence of appropriate exchangeability conditions, and lack of information necessary to make identification claims plausible» (Durlauf, 2002, 22). In his article, the author reviews three famous empirical studies, concluding that they don't help in understanding the socioeconomic outcomes of social capital, which remain unclear and to be demonstrated. However, we can argue that Durlauf's critique is one step forward in respect to the position of some prominent economists, who, prior to discuss the ability of the econometric analysis to investigate social capital's supposed outcomes, doubt the possibility to provide credible measures of its stock, and question about the opportunity itself to consider the concept as an useful analytical tool for economics. In his critique to Fukuyama, Solow (1995) writes: «If "social capital" is to be more than a buzzword, something more than mere relevance or even importance is required. ... The stock of social capital should somehow be measurable, even inexactly» (1995, 36). As a reply, it is possible to observe that, during the last ten years, the empirical research has proposed a great variety of methods for measuring social capital and testing its ability to produce relevant social, economic, and political outcomes. However, the empirics of social capital still continue to suffer from a definite difficulty to address macro outcomes in a convincing way. On this regard we can identify two main problems.

The first is the use of macro indicators not directly related to social capital's key components. Such indicators – e.g. crime rates, teenage pregnancy, blood donation, participation rates in tertiary education – are quite popular in the empirical research, but their use has led to considerable confusion about what social capital is, as distinct from its outcomes, and what the relationship between social capital and its outcomes may be. Research reliant upon an outcome of social capital as an indicator of it will necessarily find social capital to be related to that outcome. Social capital becomes tautologically present whenever an outcome is observed (Portes, 1998, Durlauf, 1999, Stone, 2001). In order to avoid such shortcomings, my study focuses only on the "structural" dimensions of social capital, as identified with social networks.

The second main problem facing the empirical literature is "aggregation". Great part of existing cross-national studies on the economic outcomes of social capital is based on measures of trust drew from the *World Values Survey*. Trust measured throug surveys is a "micro" and "cognitive" concept, in that it represents the individuals' perception of their social environment, related to the particular position that interviewed people occupy in the social structure. The aggregation of such data, however, creates a measure of what can be called "macro" or "social" trust which looses its linkage with the social and historical circumstances in which trust and social capital are located. As pointed out by Foley and Edwards (1999), empirical studies based on cross-country comparisons of

trust may be a "cul de sac", because of their inability to address macro outcomes, in view of the absence of the broader context within which attitudes are created and determined. Fine (2001) argues that «if social capital is context-dependent – and context is highly variable by how, when and whom, then any conclusion are themselves illegitimate as the basis for generalisation to other circumstances» (Fine, 2001, 105). My effort of taking into account such insights is based on the rejection of trust as a suitable social capital indicator and on the use of macro data on people effective behavior as collected by the Italian National Institute of Statistics (ISTAT) in its multipurpose surveys.

4. Measuring social capital in Italy

Since the publication of the seminal study on the Italian regions carried out by Putnam, Leonardi and Nanetti in 1993, the Italian case is particularly popular throughout the social sciences debate on cultural factors of economic growht. According to the authors, social capital endowments are highly persistent over centuries, and conditions for their formation lay down in almost a millenium previously. In the authors' words: «Stocks of social capital, such as trust, norms and networks, tend to be self-reinforcing and cumulative. Virtuos circles result in social equilibria with high levels of cooperation, trust, reciprocity, civic engagement, and collective well-being … Defection, distrust, shirking, exploitation, isolation, disorder, and stagnation intensify one another in a suffocating miasma of vicious circles. This argument suggests that there may be at least two broad equilibria toward which all societies that face problems of collective action (that is *all* societies) tend to evolve and which, once attained, tend to be self-reinforcing» (Putnam, Leonardi and Nanetti, 1993, 177). This argument has been widely discussed in the social science debate of the 90s: «It has been subject to a number of what can only be described as devastating critiques, not least from scholars of Italian history» (Fine, 2001, 86). However, this study posed a milestone for social capital theory, which registered an explosive development in the following decade, rapidly involving the attention of economists. As pointed out by Isham, Kelly and Ramaswamy (2002), a "keyword" search in all journals in *EconLit*, the most frequently used database of references in economics, shows that citations for "social capital" have grown rapidly over the last decade, doubling each year since the late 1990s. In 2000, social capital had about a quarter of the absolute number of citations. Putnam's (1993) work on Italy has been pronounced by the editor of the mainstream *Quarterly Journal of Economics* as the most cited contribution across the social sciences in the 1990s (Fine, 2001, 83).

More than ten years after *Making Democracy Work*, the aim of this paper is to map the Italian local social capital's endowments again, attempting to take into the appropriate account new insights provided by social capital theory.

A statistical method particularly suitable for investigating multidimensional concepts like social capital is principal component analysis (PCA), which is able to build few synthetic indicators starting from a variety of multiple variables, therefore allowing to "reduce" the complexity of multifaceted phenomena. I do not want to go into the details about the computational aspects of PCA here, which can be found elsewhere (see for example Bolasco, 2002, Lebart, Morineau and Warwick, 1984, Johnson and Wichern, 1992). However, basically, PCA explains the variance-covariance structure of a dataset through a few linear combinations of the original variables. Its general objectives are data reduction and interpretation. Although p components are required to reproduce the total system variablity, often much of this variability can be accounted for by a small number, k, of the principal components. If so, there is (almost) as much information in the k components as there is in the original p variables. The k principal components can then replace the initial p variables, and the original dataset, consisting of n measurements on p variables, is reduced to one consisting of n measurements on k principal components. An analysis of principal components often reveals "latent" relationships that were not previously suspected and thereby allows interpretations that would not ordinarily result. Every couple of selected principal components creates a factorial plan, which may offer a powerful graphic representation of distances between analysis units. Factorial plans are particularly suitable for comparing different geographical areas. This approach is considered "exploratory" - as opposed to great part of the other empirical analyses, which constitutes confirmatory approaches - in that it explores the underlying relations existing in data without having the claim to explain causalities in such relations. Analysis units (e.g. the Italian regions) can be reclassified according to the new "composite measures" provided by underlying factors, and factor scores can then be used as the raw data to represent the independent variables in a regression, discriminant, or correlation analysis.

The analysis is based on a dataset collected by the author including about two hundred indicators of five main social capital dimensions: strong family ties, weak informal ties, voluntary organizations, civic awareness, and political participation. Rough data are drawn from a wide set of multipurpose surveys carried out by the Italian National Institute of Statistics (ISTAT) on a sample of 20 thousand of households between 1998 and 2002[4]. This paper selects 49 key variables, and performs principal component analyses both on each of the five groups and on the entire dataset, in order to build latent indicators for every single social capital's dimension and for the concept as a whole.

4.1 Social capital as informal networks of strong family ties

[4] See ISTAT (2000, 2001, 2002a, 2002b, 2002c, 2002d, 2003, 2004a, 2004b), cited in bibliography.

The family household, as a place in which social relations characterised by trust and reciprocity operate, is generally referred to as a form of bonding social capital. Studies which focusing on social capital within a family household typically investigate the impact of social capital on a given family outcome – often child development or wellbeing. The work of Coleman (1988) is probably the most notable contribution of this type. The "strength" of family relations is measured by Coleman using a ratio of parents to children. This approach does not take into account neither the quality of parents-children relationships nor the importance of non-resident parents and of the other relatives ouside the family. In this paper, I measure family social capital through indicators of the family composition (e.g. COPFIG and FAMSING), of the spatial distance between family members (e.g. MUM1KM and FIG1KM), of the relevance of other relatives (e.g. INCPAR2S), and of the quality of relationships both with family members and with the other relatives (e.g. CONTPAR and SODDPAR). Adopted variables are described in detail in Table A1, Annex 1. Correlations are as expected, with the notable exception of SODDPAR, expressing people satisfaction for the quality of their relationships with relatives: the frequency of contacts and the spatial proximity are everywhere negatively correlated with the level of satisfaction. Strongly correlated variables (like COPFIG and COPNOFIG) are intentionally kept together in the dataset with the aim to increase the explanatory power of the factorial axes resulting from the PCA. The correlation matrix is reported in Table A2. The first principal component explains about 62 percent of the variation of the data. All factor loadings on the first axis are extremely high. The first principal component therefore provides a valuable indicator of the bonding social capital shaped by strong family ties. In particular, lower factor scores are associated with a higher frequency of family contacts and with a higher spatial proximity between family members, but also with a lower satisfaction for the quality of familiar relationships. It is noteworthy that the variable CONTPAR, expressing people propensity to count of parents in case of need, is weakly correlated with the first two axes and powerfully loads on the third principal component. Regions exhibiting the highest scores on the corresponding factor are Calabria, Sardegna, Valle d'Aosta, Umbria and Toscana, while most Central and Southern regions are not well-positioned. The variable also exhibits weak and negative correlations with the indicators of family contacts frequency and spatial proximity. The synthetic indicator provided by the PCA is therefore an expression of the strenght of family ties, but does not take into account their quality. The corresponding ranking of the Italian regions is presented in Table 1, alongside with cases' absolute contributions and squared cosines. Molise is treated as an outlier due to an excessively high absolute contribution to the second principal component (49,1).

Table 1. Italian regions ranking based on bonding social capital endowments				
Rank	Region	Factor scores	Contributions	Squared cosines
1	Campania	-5,90	16,96	0,88
2	Puglia	-4,72	10,86	0,83
3	Calabria	-4,36	9,25	0,71
4	Basilicata	-3,84	7,19	0,72
5	Sicilia	-3,37	5,54	0,59
6	Sardegna	-2,82	3,87	0,47
7	Umbria	-1,26	0,77	0,15
8	Marche	-0,20	0,02	0,01
9	Molise	-0,06	*outlier*	0,00
10	Abruzzo	0,08	0,00	0,00
11	Veneto	0,53	0,14	0,05
12	Trentino Alto Adige	0,56	0,15	0,03
13	Lazio	1,49	1,09	0,15
14	Lombardia	1,65	1,32	0,41
15	Emilia Romagna	2,65	3,42	0,65
16	Toscana	2,67	3,47	0,62
17	Friuli Venezia Giulia	3,15	4,83	0,43
18	Valle d'Aosta	3,76	6,89	0,57
19	Piemonte	4,56	10,10	0,89
20	Liguria	5,39	14,14	0,77

Factor scores are the regions' coordinates on the first principal component. Absolute contributions provide essential parameters for controlling the statical model's quality, in that they show how much of the variance explained by the α-th component is due to the *i*-th case, therefore signaling the presence of potential "outliers". The absolute contribution of the *i*-th case to the α component is given by:

$$AC = \frac{p_i c_\alpha^2(i)}{\lambda_\alpha} = \frac{p_i c_\alpha^2(i)}{\sum_i p_i c_\alpha^2(i)}$$

where $c_\alpha(i)$ is the score of region *i* on the α-th factor, weights p_i are uniform in all the PCAs performed in this paper - in order to give the same importance to the statistical units and to highlight differences among regions - and λ_α is the eigenvalue corresponding to the α-th component. If the element *i* explains too much of a factor's variance, the factorial model is "conditioned" by that element, therefore loosing its reliability. When this is the case, element *i* must be treated as an

outlier. Squared cosines are the relative contribution of the α-th factor to the explanation of each unit's variance. They therefore constitute the representation quality (*RQ*) of the *i*-th element on the α-th component, as given by:

$$RQ_{\alpha}(i) = \cos^2 \vartheta_{x_i,\Delta\alpha} = \frac{\left\| x_{i,\Delta\alpha} \right\|_M}{\left\| x_i \right\|_M} = \frac{c_{\alpha}^2(i)}{\sum_{\alpha=1}^{k} c_{\alpha}^2(i)}$$

where *k* is the number of significant eigenvalues λ considered in the analysis, $\vartheta_{x_i,\Delta\alpha}$ is the angle shaped by *i*-th case's vector and the α-th factor. An high squared cosine means that the α-th factor is powerfully able to explain the *i*-th case.

Campania exhibits the highest score, and, more in general, Southern regions register higher endowments of bonding social capital. It is noteworthy observing that negative scores do not correspond to negative endowments of bonding social capital, in that the classification is merely "comparative" and based on a latent, unobservable, variable (the first principal component), obtained as a result of a linear combination of the multiple variables composing the initial dataset. At the bottom of the ranking, a case for Liguria clearly emerges. According to the original measurement carried out by Putnam, Leonardi and Nanetti (1993), Liguria was one of the most healthy Italian regions. My rankings show that not only this region is particularly poor of bonding social capital, but also that its endowments of bridging and linking social capital have rapidly worsened during last ten years. The destruction of family social capital in Liguria may be explained as a consequence of a strong process of population aging. The annual natural increase (the surplus of births over deaths) is negative since 1970. The birth rate is actually the lowest in Italy, and the death rate is the highest. The international migration balance is positive and contributes to the increase of the social structure's heterogeneity (Istat, 2004c), while the divorce rate is among the highest (Istat, 2004d).

4.2 Social capital as informal networks of weak ties

Putnam's (1995) study on American civil society drew a distinction between the different types of social networks likely to support social capital. Putnam identified neighbourhood networks – something he described as "good neighbourliness" – as promoting social capital. In contrast, the leisure activity of bowling alone, rather than in an organised club activity, is presented by Putnam as evidence of "social disengagement". Since Putnam's (1995) analysis, a number of studies have measured networks of friends, neighbours and acquaintances somewhat more precisely. In this

paper I focus on several indicators of people social engagement or, in other terms, of what can be referred to as "relational goods", like ASSPORT and BAR2S. According to great part of the literature, social capital is accumulated not only through standard mechanisms of individual investments, but also as a result of the simultaneous production and consumption of relational goods taking place in the context of different kinds of social participation. It is noteworthy that the relationship between (production and consumption of) relational goods and the accumulation of social capital has a double direction. On one side, a higher social capital increases the returns to the time spent in social participation. For instance, it is easier and more rewarding going out with friends in a context that offers many options for socially enjoyed leisure (e.g. MUBAR and CENAF2S). In other words, social capital may be seen as an improvement in the technology of production of relational goods. On the other side, a higher social participation brings about social capital accumulation as a byproduct. For instance, trust (or empathy) may be reinforced and generalized through social interactions. Adopted variables are described in Table A3, and the correlation matrix is reported in Table A3. A PCA on this dataset provides a synthetic indicator for regional endowments of informal social networks of friends, which are generally referred to as bridging social capital by great part of the literature. The first two principal components explain about 70 percent of the variation of the data and the first axis powerfully represents positive endowments of bridging social capital, exhibiting high absolute values of correlations with all the variables. The corresponding ranking of the Italian regions is presented in Table 2.

Table 2. Italian regions ranking based on bridging social capital endowments

Rank	Region	Factor scores	Contributions	Squared cosines
1	Piemonte	-0,36	0,11	0,05
2	Valle d'Aosta	-3,35	9,70	0,79
3	Lombardia	-0,93	0,74	0,12
4	Trentino Alto Adige	-4,34	16,23	0,72
5	Veneto	-2,71	6,33	0,56
6	Friuli Venezia Giulia	-2,21	4,22	0,69
7	Liguria	1,36	1,59	0,43
8	Emilia Romagna	-2,69	6,24	0,60
9	Toscana	-1,30	1,46	0,33
10	Umbria	-0,61	0,32	0,11
11	Marche	-1,69	2,46	0,51
12	Lazio	1,64	2,33	0,35
13	Abruzzo	1,00	0,87	0,39
14	Molise	0,24	0,05	0,01
15	Campania	3,93	13,31	0,85
16	Puglia	3,91	13,16	0,67
17	Basilicata	1,43	1,75	0,11
18	Calabria	2,94	7,44	0,68
19	Sicilia	3,68	11,69	0,62
20	Sardegna	0,06	0,00	0,00

The quality of representation of the first axis, as it is shown by squared cosines, is particularly low for Piemonte, Umbria, Molise and Basilicata, and is null for Sardegna. Absolute contributions are satisfactorily homogeneous. The first principal component provides a synthetic indicator of the bridging social capital given by weak ties connecting friends and acquaintances. Lower scores are associated with a higher level of contacts with other people in informal contexts like sport circles, bars, restaurants and music clubs, and also, but more weakly, with a higher propensity to talk with neighboors. Campania lies now at the bottom of the ranking, together with the other Southern regions. The better endowed region is Trentino Alto Adige, while the case for Liguria is confirmed, in that this region appears as the poorest in Central and Northern Italy with respect to bridging social capital.

4.3 Social capital as voluntary organizations

Following Putnam (1993, 1995), great part of the literature has used membership in voluntary associations as an indicator of social capital, assuming that such groups and associations function as "schools of democracy", in which cooperative values and trust are easily socialized. In this paper, the density of voluntary organizations is measured through ORGANIZ. The degree of members involvement in the association's life is measured through AIUTOVOL, RIUASCU, RIUASEC, SOLDASS and AMIVOL. Adopted variables are described in detail in Table A5, and the correlation matrix is presented in Table A6. The PCA allows us to build a synthetic indicator for the linking social capital of voluntary organizations. The first principal component explains about 67 percent of the variation of the data, while the first factorial plan explains about 84 percent. Lower regions' scores on the first axis are associated with a higher propensity to join meetings and funding associations and also, but more weakly, with the propensity to carry out volunteering activities, as expressed by AIUTOVOL. This variable more powerfully loads on the second principal component. This suggests that civil society is a complex phenomenon with at least two major dimensions. The first one is shaped by people propensity to carry out light forms of participation, like joining meetings and giving money to associations. The second one is given by people propensity to carry out volunteering activities "on the field", with the aim to give concrete help to disadvantaged people. The regional ranking based on the first principal component is reported in Table 3. It confirms the strong polarization between Northern and Southern Italy. Veneto, Friuli Venezia Giulia, Toscana and Emilia Romagna lead the ranking, while Campania lies at the bottom, together

with Sicilia and Puglia. Trentino Alto Adige is here treated as an outlier, due to its value for the variable ORGANIZ, which is particularly higher than the national average (16,6% vs. 3,2%). The case's absolute contribution to the first axis would consequently reach the excessively high value of 53,7%, slightly influencing the structure of relationships between the other variables.

Table 3. Italian regions rankings based on participation to voluntary organizations

Rank	Region	Factor scores	Contributions	Squared cosines
1	Trentino-Alto Adige	-10,60	*outlier*	0,81
2	Veneto	-3,22	15,31	0,83
3	Toscana	-2,97	13,01	0,77
4	Friuli Venezia Giulia	-2,03	6,07	0,47
5	Valle d'Aosta	-1,81	4,80	0,68
6	Emilia Romagna	-1,70	4,28	0,47
7	Lombardia	-1,42	2,97	0,35
8	Liguria	-0,96	1,36	0,66
9	Marche	-0,60	0,53	0,10
10	Piemonte	-0,36	0,19	0,03
11	Umbria	-0,31	0,15	0,02
12	Sardegna	0,00	0,00	0,00
13	Molise	0,22	0,07	0,01
14	Calabria	1,53	3,43	0,70
15	Lazio	1,79	4,72	0,78
16	Basilicata	1,81	4,84	0,48
17	Abruzzo	2,13	6,66	0,91
18	Puglia	2,21	7,21	0,83
19	Sicilia	2,49	9,12	0,89
20	Campania	3,22	15,28	0,98

4.4 Social capital as active political participation

In this paper, I have considered political parties as a particular type of formal networks which constitute an integral part of social capital's definition. Adopted variables (Table A7) have been choosen in the attempt to capture the relational dimension of political participation (COMIZIO and CORTEO) and the degree of involvment in the organization's life (ATGRAPAR and SOLDPAR). The first two axes account for 80,34 percent of the variance. Three variables representing more active political participation (COMIZIO, CORTEO and ATGRAPR) are strongly correlated with the first axis, while people's propensity to fund political parties (SOLDPAR) is highly correlated with the second axis. Therefore, we can state that political participation, as well as social participation through voluntary organizations, is a complex phenomenon, with at least two dimension: the first one is shaped by active forms of political participation, while the second one represents a lighter form of involvement. Trentino Alto Adige and Emilia Romagna are treated as outliers, since their joint absolute contributions to the second axis would otherwise account for 63,8

percent. The first factorial plan interestingly shows that Southern regions like Calabria, Puglia and Molise exhibit the highest scores together with regions characterized by a deep tradition of active political participation like Emilia Romagna. Toscana shows particularly low squared cosines in respect to the first two axis, but is powerfully represented by the third principal component (with a quality of representation accounting for 0,89), which can be interpreted as people propensity to join marches (as described by the variable CORTEO) and to fund political parties (SOLDPAR). The regional ranking is reported in Table 4.

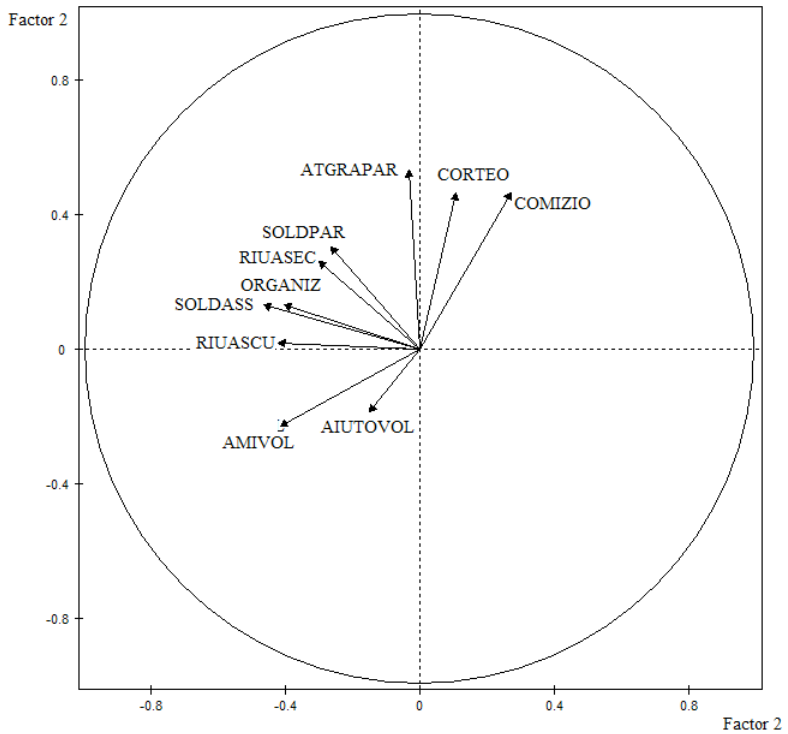
Table 4. Italian regions ranking based on active political participation

Rank	Region	Factor scores	Contribution	Squared cosines
1	Trentino-Alto Adige	5,86	*outlier*	0,76
2	Emilia Romagna	4,79	*outlier*	0,85
3	Molise	2,86	21,22	0,88
4	Calabria	2,79	20,23	0,95
5	Puglia	2,35	14,36	0,82
6	Basilicata	1,86	9,04	0,73
7	Sardegna	1,04	2,79	0,58
8	Toscana	0,26	0,17	0,01
9	Liguria	-0,16	0,06	0,02
10	Veneto	-0,33	0,28	0,22
11	Piemonte	-0,60	0,93	0,16
12	Sicilia	-0,78	1,57	0,09
13	Abruzzo	-0,78	1,60	0,29
14	Umbria	-0,93	2,23	0,27
15	Lazio	-1,08	3,01	0,47
16	Valle d'Aosta	-1,10	3,16	0,18
17	Marche	-1,13	3,33	0,84
18	Campania	-1,20	3,73	0,43
19	Friuli Venezia Giulia	-1,51	5,94	0,84
20	Lombardia	-1,56	6,36	0,85

A PCA on the two groups representing voluntary organizations and active political participation finds a weak correlation between these two types of linking social capital. The first factorial plan satisfactorily explains about the 71 percent of the total variation of the data. Variables describing active social participation have a significant negative correlation with the first axis, while indicators of active political participation are positively correlated with the second principal component. This statement is strenghtned by the observation of the correlation circle represented in Figure 1. Simplifying, the correlation circle shows a projection of the initial variables in the factors space. When two variables are far from the center, then they are significantly positively correlated if they are close to each other, and not correlated if they are ortogonal. If they are on the opposite side of the center, then they are significantly negatively correlated. When the variables are close to the

center, it means that some information is carried on other axes and that any interpretation might be hazardous. In figure 1, normed eigenvectors respectively associated to active political participation and social participation through voluntary organizations are almost ortogonal, revealing the absence of a significant correlation. The only significant correlation is between SOLDASS and SOLDPAR. This probably indicates that people used to fund political parties have also a higher propensity to fund voluntary associations. The correlation matrix is reported in Table A9.

Figure 1. Correlation circle resulting from the normal PCA on voluntary organizations and active political participation



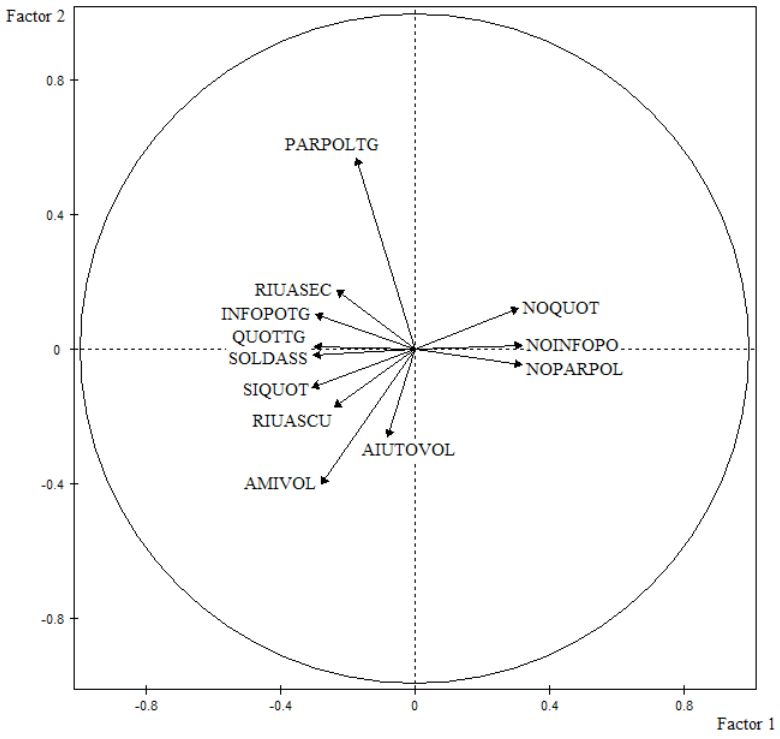
4.5 Social capital as civic awareness

In *Making Democracy Work*, Putnam, Leonardi and Nanetti (1993) adopt the number of newspapers readers as an indicator of citizens civic engagement. The claim is that well-informed citizens have a better knowledge of public affairs and a greater confidence in their ability to influence public choices. Therefore, they are more likely to be involved in collective action and public life. In his following study on the American civil society, Putnam (2000) found that people who read newspapers regularly belong to and participate more fully in a greater number of organizations and civic associations, are more likely to vote, volunteer more frequently for community projects, visit friends more frequently, and build stronger trusting relationships with their neighbors. In this paper, I have considered indicators of people propensity to keep themselves informed on public affairs as

separated from social capital indicators, with the aim to distinguish this manifestation of civicness from the structural dimensions of social capital, as given by social networks. However, a small dataset including indicators of "non-active civic engagement" is used in a PCA for building synthetic indicator of this "cognitive" dimension of social capital, in order to test Putnam's claim and to carry out interesting comparisons. Adopted variables are described in Table A10. The first two axes satisfactorily explain about 85 percent of the total variation of the data. Negative civic awareness loads powerfully on the first axis. Emilia Romagna leads the hypothetical classification based on the synthetic indicator of civic awareness, followed by Trentino-Alto Adige, Friuli Venezia Giulia and Toscana. Campania lies at the bottom, accompanied by the other Southern regions. The corresponding Italian regions ranking is presented in Table A11.

To test Putnam's claim about the role of civic awareness in the accumulation of social capital, a PCA is run on a complex dataset including indicators of civic engagement through voluntary organizations and of civic awareness. The correlation circle (Figure 2), points out a significant positive correlation between people practice to keep themselves informed and the propensity to be involved in voluntary organizations activities. In particular, eigenvectors representing the use to read newspaper everyday (QUOTTG) and the propensity to fund voluntary organizations (SOLDASS) are almost laid one upon the other, revealing a strong correlation between the corresponding variables. The correlation matrix is presented in Table A12.

Figure 2. Correlation circle resulting from the PCA on civic awareness and civic participation



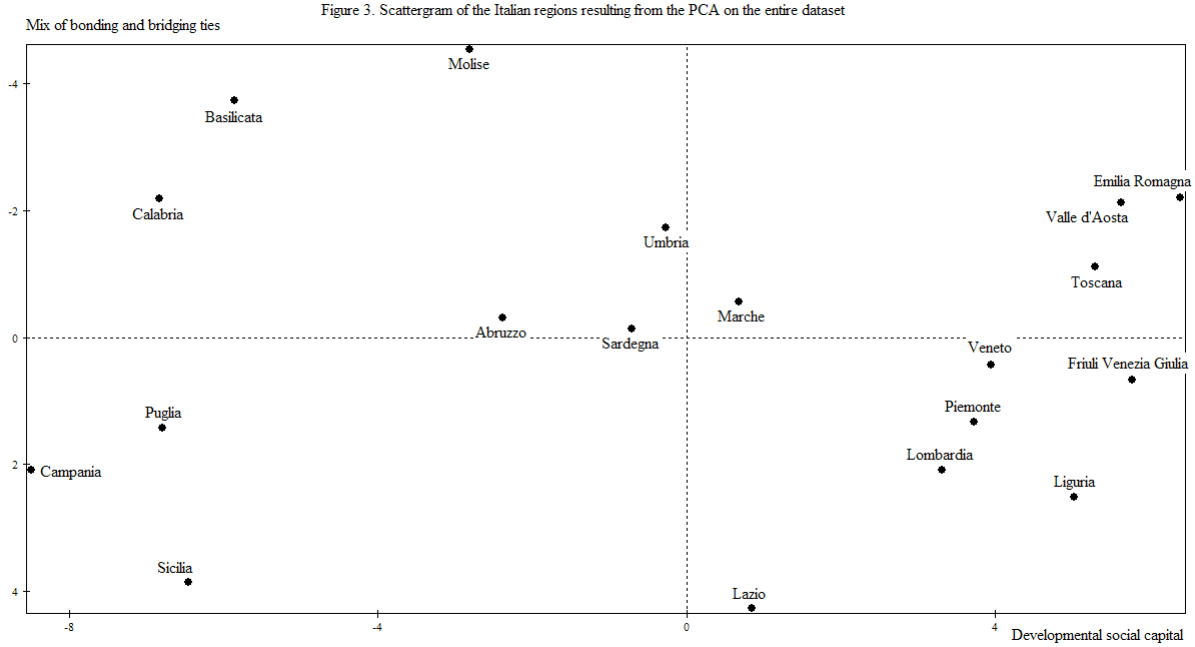
5. The empirical analysis on the entire dataset. A measure of "developmental social capital"

A PCA on the whole dataset representing the five dimensions of social capital is then run in search of a couple of suitable synthetic indicators for regional endowments. The dataset has been enriched with the addition of indicators of people engagement in religious practices (SIPRAREL and NOPRAREL) which, following Putnam (1995), can be considered as proxies for bonding social capital. Due to the excessively high contribution to the second axis (48,2), Trentino Alto Adige has been kept out of the analysis. The first axis explains 47,94 of the variance of the entire dataset. An overview to factor loadings (Table A13) shows that higher scores on the first axis are associated with lower levels of bonding social capital, a higher quality of family relationships (summarized by variables like SODDPAR and CONTPAR), higher levels of the bridging social capital shaped by weak ties among friends, higher levels of the linking social capital shaped by ties connecting members in voluntary associations, lower levels of participation to religious practices, and higher levels of civic awareness. In other terms, the first principal components provides a powerful, synthetic, indicator of that particular configuration of social capital which the literature generally associates with positive economic outcomes. We could label this measure as "developmental social capital". The interpretation of the second axis is quite more complicated. Factor loadings are not particularly high, and it is possible to observe weakly negative correlations between the second principal component and all of the five dimensions of social capital. In the scattergram representing the Italian regions, however, the vertical simmetry has been inverted, in order to allow a more intuitive interpretation of the graph. Therefore, even if the second principal component can represent a generic lack of bonding and bridging social capital, the vertical axis, after the 180° rotation, has been named "mix of bonding and bridging ties" to the seek of brevity.

The analysis points out also a positive correlation between weak ties (e.g. the habit to meet friends in informal contexts like sport circles, bars, and music clubs) and the linking ties of voluntary organizations. A strong correlation emerges also between strong family ties and a scarce interest in politics and collective affairs. Higher levels of religious participation are strongly correlated with the presence of bonding social capital and with a scarce interest in politics and civic affairs, while bridging and linking ties show a significant correlation with a low religious participation. This confirms Putnam's (1995) interpretation of the catholic church as a particular form of bonding social capital, which does not create mutuality and equality of participation, and does not have the same effect as membership in social capital-rich groups.

The scattergram (Figure 3) highlights the usual polarization between Northern and Southern regions. Emilia Romagna and Campania lie on the opposite sides of the scale representing the overall endowments of developmental social capital.

Figure 3. Scattergram of the Italian regions resulting from the PCA on the entire dataset



The corresponding classification is summarized in Table 5, which includes also Trentino Alto Adige (not represented on the scattergram).

Table 5. Ranking of the Italian regions based on developmental social capital
PCA on the entire dataset

Rank	Region	Factor scores	Contributions	Squared cosines
1	Trentino Alto Adige	8,25	*outlier*	0,30
2	Emilia Romagna	6,40	8,99	0,57
3	Friuli Venezia Giulia	5,76	7,30	0,57
4	Valle d'Aosta	5,62	6,94	0,53
5	Toscana	5,30	6,16	0,58
6	Liguria	5,02	5,53	0,41
7	Veneto	3,95	3,42	0,36
8	Piemonte	3,72	3,04	0,42
9	Lombardia	3,30	2,39	0,38
10	Lazio	0,84	0,16	0,02
11	Marche	0,68	0,10	0,02
12	Umbria	-0,27	0,02	0,00
13	Sardegna	-0,71	0,11	0,01
14	Abruzzo	-2,39	1,25	0,27
15	Molise	-2,81	1,74	0,13
16	Basilicata	-5,86	7,54	0,54
17	Sicilia	-6,45	9,12	0,63
18	Puglia	-6,79	10,12	0,66
19	Calabria	-6,83	10,24	0,73
20	Campania	-8,49	15,84	0,82

Finally, a PCA is run on the four "structural" groups of data. The precedent analysis' outcomes are substantially confirmed, with few minor exceptions. The final ranking is reported in Table 6. Trentino Alto Adige is considered out of the analysis (its absolute contribution to the second axis would otherwise have accounted for 48,4 percent).

Table 6. Ranking of the Italian regions based developmental social capital
PCA on the four structural dimensions

Rank	Region	Factor scores	Contributions	Squared cosines
1	Trentino Alto Adige	7,44	*outlier*	0,26
2	Valle d'Aosta	5,88	10,27	0,66
3	Emilia Romagna	5,05	7,56	0,49
4	Friuli Venezia Giulia	4,66	6,44	0,50
5	Toscana	4,42	5,78	0,54
6	Liguria	3,96	4,65	0,32
7	Piemonte	3,38	3,40	0,42
8	Veneto	3,21	3,05	0,28
9	Lombardia	2,86	2,43	0,32
10	Marche	0,82	0,20	0,04
11	Umbria	0,09	0,00	0,00
12	Lazio	-0,56	0,09	0,01
13	Abruzzo	-1,31	0,51	0,12
14	Molise	-1,31	0,51	0,04
15	Sardegna	-1,40	0,58	0,07
16	Basilicata	-4,33	5,56	0,39
17	Calabria	-5,39	8,61	0,64
18	Sicilia	-5,56	9,16	0,59
19	Puglia	-6,81	13,74	0,73
20	Campania	-7,67	17,46	0,83

The first two axes have the same meaning of those extracted through the PCA on the entire dataset, with the only exception given by the absence of information about people propensity to keep themselves posted on politics and public affairs. In conclusion, also the first principal component of this PCA can be considered as a suitable indicator of what we have termed "developmental social capital", expressing a combination of low levels of bonding social capital and high levels of bridging and linking social capital.

6. In search of a single synthetic indicator of social capital: a multiple factor analysis

Finally, a multiple factor analysis (MFA) is run in search of an indicator synthetizing regional endowments of the four structural dimensions of social capital. Without going into theoretical and

computational details (which can be found, for example, in Escofier and Pagès, 1984, and Bolasco, 2002), MFA is a multivariate technique particularly suitable for addressing matrixes composed by a set of units described by multiple groups of variables. It studies the different aspects of the multidimensional phenomenon by weighting each group of characteristics in order to properly balance their respective relevance to the general analysis. Let $\boldsymbol{X}$ be the multiway matrix, and $\boldsymbol{X}_k$ the submatrixes gathering the different groups of variables. The MFA carries out a "weighted" principal component analysis of $\boldsymbol{X}$. Every characteristic belonging to the k-th group will be weighted by the quantity:

$$\frac{1}{\sqrt{\lambda_{1k}}},$$

where λ_{1k} is the highest eigenvalue resulting from the PCA performed on the k-th group. Such a method allows to balance each group's role in the general analysis and provides a representation of considered units and variables which can be interpreted following the same criteria of the PCA. Once again, analysis units can be measured through new latent indicators, which are more synthetic than those provided by normal PCAs, in that they summarize regional endowments in terms of each group of variables. Factors resulting from the MFA are called "total" factors, as distinguished from "partial" factors resulting from normal PCAs.

Groups labels are defined as follows: 1. strong family ties, 2. weak informal ties, 3. linking ties of voluntary organizations, 4. active political participation. The eigenvalues resulting from the MFA are reported in Table A13 and the matrix of correlations between partial factors is presented in Table 7.

Table 7. Matrix of correlations between partial factors
(GGFF with G = group and F = factor)

GGFF	101	102	201	202	301	302	401	402
101	1,0000							
102	0,0000	1,0000						
201	-0,6985	0,0415	1,0000					
202	-0,0980	0,5443	0,0000	1,0000				
301	-0,7429	0,1095	0,8984	0,0756	1,0000			
302	-0,0834	0,1209	-0,1595	0,3410	0,0000	1,0000		
401	0,2853	-0,2776	-0,1963	-0,3880	-0,0902	-0,2663	1,0000	
402	-0,5287	0,1853	0,7358	-0,1515	0,5595	-0,3222	0,0000	1,0000

Factors belonging to the same group are obviously not correlated, as they are principal components. Correlations' signs are not subject to interpretation, since factors orientation is urrelevant.

The structure of relationships between groups is analysed through the *Lg* coefficients. These indexes express the correlation between each two groups of variables, computed as the sum of squared covariances between each column of the *k*-th group and each column of the *k'*-th group. The *Lg* relation coefficients between groups are reported in Table 8. Coefficients are homogeneous, with the exception of the active political participation group.

Table 8. *Lg* relation coefficients between groups

	Group 1	Group 2	Group 3	Group 4	All groups
Group 1	1,1170				
Group 2	0,6348	1,2562			
Group 3	0,6379	0,8730	1,1337		
Group 4	0,3708	0,4624	0,3269	1,3381	
All groups	0,9444	1,1038	1,0166	0,8547	1,3410

The interpretation of the factorial plan resulting from the MFA is made observing each groups' coordinates, contributions and squared cosines on the first two axes (Table 9), and active partial axes' coordinates, contributions and representation quality on total facors (Table 10).

Table 9. Coordinates and helps to the interpretation of the active groups

		Coordinates		Contributions		Squared cosines	
Group	d²(Group, origin)	axis 1	axis 2	axis 1	axis 2	axis 1	axis 2
1	1,3381	0,7793	0,1153	26,6633	8,6126	0,5438	0,0119
2	1,3381	0,9035	0,2149	30,9116	16,0581	0,6499	0,0368
3	1,3381	0,8704	0,1460	29,7779	10,9087	0,6682	0,0188
4	1,3381	0,3697	0,8622	12,6472	64,4206	0,1021	0,5556
All groups				1,0000	1,0000	0,4784	0,1701

Table 10. Coordinates and helps to the interpretation of active partial axes

			Coordinates		Contributions		Squared cosines	
Groups	Partial axis	Weights	Axis 1	axis 2	axis 1	axis 2	axis 1	axis 2
Group 1	1	1,0000	0,8697	-0,0857	25,8805	0,5485	0,7565	0,0073
(Normal PCA)	2	0,2412	-0,1332	0,4092	0,1463	3,0186	0,0177	0,1675
Group 2	1	1,0000	-0,9459	-0,1304	30,6130	1,2706	0,8948	0,0170
(Normal PCA)	2	0,4477	-0,0946	0,6098	0,1371	12,4375	0,0090	0,3718
Group 3	1	1,0000	-0,9288	-0,1537	29,5131	1,7658	0,8626	0,0236
(Normal PCA)	2	0,2851	0,0363	0,4400	0,0129	4,1230	0,0013	0,1936
Group 4	1	1,0000	0,2890	-0,9017	2,8580	60,7508	0,0835	0,8131
(Normal PCA)	2	0,5324	-0,7151	-0,2943	9,3152	3,4465	0,5114	0,0866

The first three groups are satisfactorily represented on the first total factor. Higher scores on this factor correspond to higher endowments of bridging and linking social capital (i.e. groups 2 and 3) and, more weakly, of bonding social capital (group 1). The active political participation group is well represented on the second total factor. Higher scores on the corresponding axis are associated with higher levels of active political participation.

Regions' coordinates on the first axis therefore provide a nerw powerful, synthetic, measure of "global" endowments of social capital, representign positive endowments of all the phenomenon's structural dimensions with the exception of active political participation. The corresponding ranking of the Italian regions is reported in Table 11.

Table 11. Ranking of the Italian regions based on "global social capital"

Rank	Region	Factor scores	Contributions	Squared cosines
1	Trentino Alto Adige	4,8866	*outlier*	0,4190
2	Valle d'Aosta	2,3781	10,1835	0,6418
3	Emilia Romagna	2,0958	7,9095	0,3494
4	Veneto	1,9572	6,8973	0,5225
5	Friuli Venezia Giulia	1,8695	6,2932	0,4613
6	Toscana	1,7750	5,6734	0,4141
7	Lombardia	1,3020	3,0523	0,3201
8	Liguria	0,9894	1,7626	0,1765
9	Piemonte	0,9519	1,6316	0,2012
10	Marche	0,8258	1,2281	0,1991
11	Umbria	0,5170	0,4813	0,0699
12	Sardegna	-0,3413	0,2097	0,0245
13	Lazio	-0,6681	0,8036	0,0909
14	Abruzzo	-0,7986	1,1483	0,1890
15	Molise	-1,1963	2,5771	0,1359
16	Basilicata	-1,7604	5,5802	0,3470
17	Sicilia	-2,1899	8,6355	0,4870
18	Calabria	-2,2549	9,1555	0,5811
19	Campania	-2,6649	12,7881	0,6631
20	Puglia	-2,7873	13,9893	0,6949

The ranking is substantially similar to that resulting from the PCA on the four structural dimensions of social capital. The exceptions are due to the influence of bonding social capital on the first factor: Piemonte and Liguria slightly slide down and Campania leaves the last position. Trentino Alto Adige is treated again as an outlier (its absolute contribution to the fist axis would have been equal

to 42,99) and leads the classification, followed by Valle d'Aosta, Emilia Romagna, Friuli Venezia Giulia, Veneto and Toscana.

7. Concluding remarks

Overall, the empirical evidence in this paper shows a clear distinction between two types of networks. The former is shaped by strong family ties, and corresponds to what the theoretical literature generally calls bonding social capital. The latter is shaped both by weak ties among friends and neighboors and by formal ties linking together people coming from different social backgrounds within the boundaries of voluntary organizations. Such networks, corresponding to what the literature has often termed "bridging" and "linking" social capital, tend to juxtapose each other in the Italian regions.

Regional endowments of the two types of social capital reveal very different. Areas characterized by higher levels of bonding social capital can suffer from a lack of bridging and linking social capital: differently from what to date has been done by most cross-country studies, we have to be very cautios in carrying out international comparisons laying just on a single measure (like trust levels).

My analysis provides a valuable synthetic indicator capturing that particular configuration of social capital which the literature generally associates with positive economic outcomes. Particularly, these measure indicates low levels of bonding social capital, a good quality of family relationships, high levels of the bridging social capital shaped by weak ties among friends, high levels of the linking social capital shaped by ties connecting members in voluntary associations, and high levels of civic awareness. Such a measure should constitute the point of departure for a deeper empirical investigations on social capital's effects in terms of economic growht, development, and well-being.

Other interesting findings can be summarized as follows. Interest in politics and public affairs is found to be negatively correlated with the bonding social capital shaped by strong family ties. On the contrary, the bridging social capital of weak ties is generally accompanied by higher civic awareness and participation. Active political correlation through parties is not correlated to civic participation through voluntary organizations, but exhibits an interesting positive relationship with bonding social capital. Southern regions like Molise, Calabria and Puglia are characterized by high levels of people involvment in political parties life which, however, do not correspond to a diffuse interest in politics and public affairs. Higher levels of religious participation are strongly correlated with the presence of bonding social capital and with a scarce interest in politics and civic affairs, while bridging and linking ties show a significant correlation with a low religious participation. This may confirm Putnam's (1995) interpretation of the catholic church as a particular form of

bonding social capital, which do not create mutuality and equality of participation, and do not have the same effect as membership in social capital-rich groups.

Finally, the well-known polarization between Northern and Southern regions is confirmed. Trentino-Alto Adige, Valle d'Aosta, Emilia Romagna and Toscana result as the most healthy Italian regions. Although showing remarkable endowments of bonding family ties, Campania, Puglia, Calabria and Sicilia exhibit a worrying poverty of bridging and linking social capital.

9. Bibliography

Almond, G., Verba, S. (1963), *The Civic Culture*, Princeton, Princeton University Press.

Arrow, K. (1999), *Observations on Social Capital*, in P. Dasgupta and I. Serageldin (eds), *Social Capital. A Multifaceted perspective*, The World Bank, Washington D.C.

Banfield, E.G. (1958), *The Moral Basis of a Backward Society*, New York, Free Press.

Becker, G. (1974), *A Theory of Social Interactions*, in "Journal of Political Economy", 82, n. 6, pp. 1063-1093.

Bolasco, S. (2002), *Analisi multidimensionale dei dati. Metodi, strategie e criteri d'interpretazione*, Roma, Carocci.

Bourdieu, P. (1980), *Le capital social*, in ″Actes de la Recherche en Sciences Sociales″, 31 (1980), 2-3.

Bourdieu, P. (1986), *The forms of capital*, in J.G. Richardson (ed.), *Handbook of Theory and Research for the Sociology of Education*, New York, Greenwood Press, 241-258.

Bourdieu, P. and L. Wacquant (1996), *An Invitation to reflexive sociology*, Cambridge, Polity.

Bowles, S. and H. Gintis (2002), *Social Capital and Community Governance*, in "The Economic Journal", Vol. 112, I. 483, 419-436.

Brehm, J., Rahn, W. (1997), *Individual-Level evidence for the causes and consequences of Social Capital*, "American Journal of Political Science", 41, 3, 999-1023.

Brown, L.D. and D. Ashman (1996), *Participation, social capital and intersectoral problem solving, African and Asian cases*, in "Worl Development", 24(6), 1467-79.

Cole, H.L., Mailath, G.J. and A. Postlewaite (1992), *Social Norms, Savings Behavior, and Growth*, in "The Journal of Political Economy", Vol. 100, No. 6, 1092-1125.

Coleman, J. (1988), *Social Capital in the Creation of Human Capital*, in "American Journal of Sociology", Vol. 94, S95-S120.

Coleman, J. (1990), *Foundations of Social Theory*, Cambridge, MA, Harvard University Press.

Durlauf, S.N. (1999), *The Case Against Social Capital*, in "Focus", vol. 20, n.3.

Durlauf, S.N. (2002), *On the Empirics of Social Capital*, University of Wisconsin, Department of Economics, mimeo.

Escofier, B., and J. Pagès (1984), *L'analyse factorielle multiple: une méthode de comparaison de groupes de variables*, in Sokal, R.R., Diday, E., Escoufier, Y., Lebart, L. and Pagès, J. (eds), *Data Analysis and Informatics III*, Elsevier, North-Holland.

Evans, G. and N. Letki (2003), *Social Trust and Responses to Political and Economic Transformation in East-Central Europe*, Nuffield College Working Papers in Politics, 2002-WP9.

Fine, B. (2001), *Social Capital versus Social Theory. Political Economy and Social Science at the Turn of the Millenium*, Londra e New York, Routledge.

Foley, M.W., Edwards, B. (1999), *Is It Time to Disinvest in Social Capital?*, "Journal of Public Policy", Vol. 19, No. 2, 199-231.

Fukuyama, F. (1999), *Social Capital and Civil Society*, Paper presented at the IMF Conference on Second Generation Reforms, November 8-9, 1999, IMF Institute and the Fiscal Affairs Department, Washington, D.C.

Gambetta, A., (1990), *The Sicilian Mafia*, Oxford, Oxford University Press.

Granovetter, M.S. (1973), *The Strenght of Weak Ties*, "The American Journal of Sociology", Vol 78, No. 6 (May 1973), 1360-1380.

Guiso, L., Sapienza, P. e Zingales, L. (2004), *The Role of Social Capital in Financial Development*, in "The American Economic Review", vol. 94, n. 3, 526-556.

Johnson, P.A., Temple, J. *Social capability and economic growth*, "Quarterly Journal of Economics", August 1998, 113(3), 965-990.

Johnson, R.A., Wichern, D.W. (1992), *Applied Multivariate Statistical Analysis*, New York, Prentice Hall.

Harary, F., Norman, R., and D. Cartwright (1965), *Structural Models*, New York, Wiley.

Harriss, J. (2002), *Depoliticizing Development: the World Bank and social capital*, London, Anthem Press.

Heckman, J. (2000), *Causal Parameters and Policy Analysis in Economics: a Twentieth Century Retrospective*, "Quarterly Journal of Economics", Vol. 115, Issue 1, 45-97.

Heliwell, J.F. and Putnam, R.D. (1995), *Economic Growth And Social Capital In Italy*, "Eastern Economic Journal", 21, 295-307.

ISTAT (2000), *I cittadini e l'ambiente. Indagine multiscopo sulle famiglie "Aspetti della vita quotidiana", Anno 1998*, Roma, ISTAT.

ISTAT (2001), *Parentela e reti di solidarietà. Indagine multiscopo sulle famiglie "Famiglia, soggetti sociali e condizioni dell'infanzia", Anno 1998*, Roma, ISTAT.

ISTAT (2002a), *I cittadini e le tecnologie della comunicazione. Indagine multiscopo sulle familglie "I cittadini e il tempo libero", Anno 2000*, Roma, ISTAT.

ISTAT (2002b), *Le attività del tempo libero. Indagine multiscopo sulle famiglie "I cittadini e il tempo libero", Anno 2000*, Roma, ISTAT.

ISTAT (2002c), *Letture e linguaggio. Indagine multiscopo sulle famiglie "I cittadini e il tempo libero", Anno 2000*, Roma, ISTAT.

ISTAT (2002d), *L'offerta di servizi sportivi in Italia*, Roma, ISTAT.

ISTAT (2003), *Famiglia, abitazione e zona in cui si vive. Indagine multiscopo sulle famiglie "Aspetti della vita quotidiana", Anno 2002*, Roma, ISTAT.

ISTAT (2004a), *Cultura, socialità e tempo libero. Indagine multiscopo sulle famiglie "Aspetti della vita quotidiana", Anno 2002*, Roma, ISTAT.

ISTAT (2004b), *Le organizzazioni di volontariato in Italia, Anno 2001*, Roma, ISTAT.

ISTAT (2004c), *Bilancio demografico regionale della Liguria, Anno 2003*, Roma, Istat.

ISTAT (2004d), *Separazioni, divorzi e affidamento dei minori, Anno 2002*, Roma, ISTAT.

Lebart, L., Morineau, A. and Warwick, K.M. (1984), *Multivariate Descriptive Statistical Analysis. Correspondence Analysis and Related Techniques for Large Matrices*, New York, John Wiley & Sons.

Leonardi, R., Nannetti, R.Y. and R.D. Putnam (1985), *La pianta e le radici: Il radicamento dell'istituto regionale nel sistema politico italiano*, Bologna, Il Mulino.

Paldam, M. and G.T. Svendsen (2002), *Missing Social Capital And The Transition From Socialism*, in "Journal for Institutional Innovation, Development and Transition", 5, 21-34.

Portes, A. (1998), *Social capital: its origins and applications in modern sociology*, "Annual Review of Sociology" 24: 1-24.

Punam, R.D., Leonardi, R., and R.Y Nanetti (1993), *Making Democracy Work: Civic Traditions in Modern Italy*, Princeton University Press, Princeton, trad. it. *La tradizione civica nelle regioni italiane*, Mondadori, Milano.

Putnam, R.D. (1994), *Tuning In, Tuning Out: The Strange Disappearance of Social Capital in America*, in "PS Online: American Political Science Association's Journal of the Profession".

Putnam, R.D. (1995), *Bowling Alone: America's Declining Social Capital*, in "Journal of Democracy", 6, 1, 65-78.

Putnam, R.D. (2000), *Bowling Alone. The Collapse and Revival of American Community*, New York, Simon & Schuster.

Raiser, M. (1997), *Informal Institutions, Social Capital and Economic Transition: Reflections on a Neglected Dimension*, European Bank for Reconstruction and Development, EBRD Working Paper n. 25.

Raiser, M., Haerpfer, C., Nowotny, T. and C. Wallace (2001), *Social Capital in Transition: A First Look at the Evidence*, European Bank for Reconstruction and Development, Working Paper No. 62.

Routledge, B. and J. von Amsberg (2003), *Social Capital and Growth*, in "Journal of Monetary Economics", Vol. 50:1, 167-193.

Sabatini, F. (2004), *Il concetto di capitale sociale nelle scienze sociali. Una rassegna della letteratura economica, sociologica e politologica*, in "Studi e Note di Economia", No 2/2004, pp. 73-105.

Sabatini, F. (2005), *Resources for the Study of Social Capital*, "The Journal of Economic Education", Vol. 36, No. 2 (Spring 2005).

Solow, R.M. (1995), *But Verify*, The New Republic (September 11), 36-39, Review of F. Fukuyama (1995), Trust: The Social Virtues and the Creation of Prosperity, New York, Free Press.

Solow, R.M. (1999), *Notes on Social Capital and Economic Performance*, in P. Dasgupta and I. Serageldin (eds), *Social Capital. A Multifaceted perspective*, The World Bank, Washington D.C.

Stiglitz, J. (1999), *Wither Reform*? Paper presented at the Annual Bank Conference on Development Economics, Washington D.C. April 1999.

Stone, W. (2001), *Measuring Social Capital*, Melbourne, Australian Institute of Family Studies, Research Paper No. 24/2001.

Temple, J. (2001), *Growth Effects of Education and Social Capital in the OECD Countries*, in "OECD Economic Studies", No. 33, 2001/2, 57-101.

Torsvik, G. (2000), *Social Capital and Economic Development: A Plea for the Mechanism*, in "Rationality and Society", 12, 451-476.

Trigilia, C. (2001), *Social Capital and Local Development*, "European Journal of Social Theory", 2001; 4, 427-442.

Uslaner, E.M. (2002), *The Moral Value of Trust*, Cambridge, Cambridge University Press.

Zak, P. and S. Knack (2001), *Trust and Growth*, in "The Economic Journal", 111, 295-321.

Annex A. Tables

Table A1. Indicators of family social capital

Label	Description	Year	Source	Mean	St. Dev
CONTPAR	People aged 14 and more particularly caring relatives other than parents, children, grandparents and grandchildren, or counting on them in case of need, for every 100 people of the same area.	1998	ISTAT (2001)	3,905	1,037
COPFIG	Couples with children, for every 100 families of the same area.	2001/02	ISTAT (2003)	18,470	4,861
COPNOFIG	Couples without children, for every 100 families of the same area.	2001/02	ISTAT (2003)	71,500	5,424
FAM5COMP	Families with 5 components and more for every 100 families of the same area.	2001/02	ISTAT (2003)	10,990	3,995
FAMSINGL	Singles-families for every 100 families of the same area.	2001/02	ISTAT (2003)	72,790	5,022
FIG16KM	People aged 15 and more with children living 16 kilometers away or more (in Italy or abroad) for every 100 families with children of the same area.	1998	ISTAT (2001)	10,225	3,958
FIG1KM	People aged 15 and more with children living within 1 kilometer (cohabitants or not) for every 100 families with children of the same area.	1998	ISTAT (2001)	86,245	3,594
FRATELTG	People meeting their brothers and/or sisters everyday for every 100 people with brothers and/or sisters of the same area.	1998	ISTAT (2001)	6,955	3,199
GIOBAM2S	People aged 6 and more playing with children once a week or more for every 100 people of the same area.	2000	ISTAT (2002b)	32,11	2,33
INCPARTG	People aged 6 and more meeting family members or other relatives everyday for every 100 people of the same area.	2000	ISTAT (2002b)	59,735	5,448
MUM16KM	People up to 69 having their mother living 16 kilometers away or more (in Italy or abroad) for every 100 people with an alive mother of the same area.	1998	ISTAT (2001)	28,595	5,408
MUM1KM	People up to 69 having their mother living within 1 kilometer (cohabitant or not) for every 100 people with an alive mother of the same area.	1998	ISTAT (2001)	46,055	9,139
NOGIOBAM	People aged 6 and more never playing with children for every 100 people of the same area.	2000	ISTAT (2002b)	36,22	4,19
NOINCPA	People aged 6 and more never meeting their family members and other non cohabitant relatives for every 100 people of the same area.	2000	ISTAT (2000b)	10,790	4,937
NOPARENT	People aged 6 and more having neither a family nor other non cohabitant relatives for every 100 people of the same area.	2000	ISTAT (2000b)	23,075	4,900
SODDPAR	People aged 14 and more declaring themselves satisfied of relationships with their relatives for every 100 people of the same area.	2002	ISTAT (2004a)	36,27	6,34
VFIGTG	People meeting their children everyday for every 100 people with non cohabitant children of the same area.	1998	ISTAT (2001)	43,245	4,176
VMUMTG	People meeting their mother everyday for every 100 people with non cohabitant mother of the same area.	1998	ISTAT (2001)	17,075	3,253

Table A2. Correlation matrix of variables representing strong family ties

	SODDPAR	INCPARTG	NOINCPAR	NOPARENT	MUM1KM	MUM16KM	FIG1KM	FIG16KM	GIOBAM2S	NOGIOBAM	FAMSINGL	FAM5COMP	COPPFIG	COPNOFIG	FRATELTG	VMUMTG	VFIGTG	CONTPAR
SODDPAR	1,00																	
INCPARTG	-0,20	1,00																
NOINCPAR	0,55	-0,42	1,00															
NOPARENT	0,45	0,07	0,31	1,00														
MUM1KM	-0,66	0,42	-0,66	-0,56	1,00													
MUM16KM	0,66	-0,39	0,62	0,45	-0,95	1,00												
FIG1KM	-0,40	0,26	-0,34	-0,60	0,79	-0,72	1,00											
FIG16KM	0,26	-0,08	0,25	0,45	-0,60	0,66	-0,81	1,00										
GIOBAM2S	-0,55	0,33	-0,22	-0,34	0,69	-0,75	0,70	-0,68	1,00									
NOGIOBAM	0,67	-0,41	0,60	0,47	-0,84	0,77	-0,72	0,54	-0,58	1,00								
FAMSINGL	0,51	-0,26	0,49	0,43	-0,81	0,80	-0,78	0,52	-0,63	0,60	1,00							
FAM5COMP	-0,71	0,34	-0,59	-0,59	0,95	-0,94	0,78	-0,64	0,75	-0,82	-0,82	1,00						
COPPFIG	-0,67	0,34	-0,56	-0,60	0,95	-0,91	0,82	-0,65	0,69	-0,91	-0,72	0,92	1,00					
COPNOFIG	0,61	-0,29	0,45	0,55	-0,89	0,86	-0,81	0,72	-0,68	0,88	0,62	-0,88	-0,98	1,00				
FRATELTG	-0,47	0,67	-0,60	-0,43	0,86	-0,78	0,56	-0,29	0,50	-0,71	-0,62	0,77	0,79	-0,71	1,00			
VMUMTG	-0,56	0,59	-0,69	-0,39	0,82	-0,78	0,42	-0,20	0,50	-0,63	-0,61	0,72	0,72	-0,61	0,92	1,00		
VFIGTG	-0,18	0,14	-0,48	-0,55	0,47	-0,41	0,50	-0,38	0,35	-0,22	-0,64	0,51	0,34	-0,24	0,41	0,40	1,00	
CONTPAR	0,62	0,04	0,47	-0,02	-0,36	0,49	-0,02	0,18	-0,33	0,33	0,21	-0,36	-0,32	0,27	-0,13	-0,29	0,16	1,00

Table A3. Indicators of the informal networks of friends and neighboors					
Label	Description	Year	Source	Mean	St.dev
ASSPORT	Non profit sport clubs for every 10.000 people of the same area.	2002	ISTAT (2002d)	11,440	4,829
BAR2S	People aged 6 and more attending bars, pubs, and circles at least once a week for every 100 people of the same area.	2000	ISTAT (2002b)	21,500	4,076
CENAF2S	People aged 6 and more having dinner outside more than once a week for every 100 people of the same area.	2000	ISTAT (2002b)	5,045	1,198
INCAMI2S	People aged 6 and more meeting friends more than once a week for every 100 people of the same area.	2002	ISTAT (2004)	28,735	1,485
MUBAR	People aged 14 and more attending pubs and bars to listen to music concerts for every 100 people of the same area.	2000	ISTAT (2002b)	18,620	2,411
NOBAR	People aged 6 and more never attending bars, pubs and circles for every 100 people of the same area.	2000	ISTAT (2002b)	47,865	6,513
NOCENF	People aged 6 and more never having dinner outside for every 100 people of the same area.	2000	ISAT (2002b)	17,265	4,954
NOPARLCO	People aged 6 and more never talking with others for every 100 people of the same area.	2000	ISTAT (2002b)	8,510	1,269
NOPARVIC	People aged 6 and more never talking with neighboors for every 100 people of the same area.	2000	ISTAT (2002b)	25,585	3,314
PARCON2S	People aged 6 and more talking with others once a week or more for every 100 people of the same area.	2000	ISTAT (2002b)	46,965	6,074
PARVIC2S	People aged 6 and more talking with neighboors once a week or more for every 100 people of the same area.	2000	ISTAT (2002b)	22,940	3,328

Table A4. Correlation matrix of variables representing weak ties among friends and neighboors											
	ASSPORT	INCAMI2S	PARVIC2S	NOPARVIC	PARCON2S	NOPARLCO	CENAF2S	NOCENF	BAR2S	NOBAR	MUBAR
ASSPORT	1,00										
INCAMI2S	0,41	1,00									
PARVIC2S	0,11	0,25	1,00								
NOPARVIC	-0,10	-0,38	-0,72	1,00							
PARCON2S	0,65	0,41	0,45	-0,29	1,00						
NOPARLCO	-0,35	-0,26	-0,41	0,53	-0,74	1,00					
CENAF2S	0,65	0,35	-0,02	0,10	0,64	-0,25	1,00				
NOCENF	-0,52	-0,40	-0,10	0,14	-0,67	0,49	-0,83	1,00			
BAR2S	0,76	0,41	0,30	-0,25	0,86	-0,53	0,77	-0,66	1,00		
NOBAR	-0,74	-0,33	-0,17	0,33	-0,72	0,54	-0,66	0,66	-0,89	1,00	
MUBAR	0,72	0,12	-0,15	0,24	0,48	-0,06	0,83	-0,58	0,68	-0,62	1,00

Table A5. Indicators of social capital as voluntary organizations					
Name	Description	Year	Source	Mean	St. Dev.
AIUTOVOL	People aged 14 and more who have helped strangers in the context of a voluntary organization's activity, for every 100 people of the same area.	1998	ISTAT (2001)	5,080	1,407
AMIVOL	People aged 6 and more who, when meeting friends, carry out voluntary activities for every 100 people meeting friends of the same area.	2002	ISTAT (2004a)	3,920	1,287
ORGANIZ	Voluntary organizations for every 10.000 people	2001	ISTAT (2004b)	4,195	3,284
RIUASCU	People aged 14 and more who have joined meetings in cultural circles and similar ones at least once a year for every 100 people of the same area.	2002	ISTAT (2004)	8,485	3,862
RIUASEC	People aged 14 and more who have joined meetings in ecological associations and similar ones at least once a year for every 100 people of the same area.	2002	ISTAT (2004)	1,755	0,458
SOLDASS	People aged 14 and more who have given money to an association at least once a year for every 100 people of the same area.	2002	ISTAT (2004)	15,635	6,250

Table A6. Correlation matrix of variables representing voluntary organizatons						
	RIUASEC	RIUASCU	ORGANIZ	SOLDASS	AMIVOL	AIUTOVOL
RIUASEC	1,00					
RIUASCU	0,56	1,00				
ORGANIZ	0,42	0,74	1,00			
SOLDASS	0,63	0,71	0,77	1,00		
AMIVOL	0,37	0,67	0,51	0,75	1,00	
AIUTOVOL	0,24	0,26	0,03	0,21	0,34	1,00

Table A7. Indicators of social capital as active political participation					
Label	Description	Year	Source	Mean	St.Dev
ATGRAPAR	People aged 14 and more who have carried out unpaid work for a political party in the 12 months before the interview, for every 100 people of the same area.	2002	ISTAT (2004)	1,500	0,365
COMIZIO	People aged 14 and more who have joined a political meeting in the 12 months before the interview, for every 100 people of the same area.	2002	ISTAT (2004)	6,025	2,698
CORTEO	People aged 14 and more who have joined a march in the 12 months before the interview, for every 100 people of the same area.	2002	ISTAT (2004)	5,700	1,525
SOLDPAR	People aged 14 and more who have given money to a political party in the 12 months before the interview, for every 100 people of the same area.	2002	ISTAT (2004)	2,630	1,178

Table A8. Correlation matrix of variables representing active political participation				
	COMIZIO	CORTEO	ATGRAPAR	SOLDPAR
COMIZIO	1,00			
CORTEO	0,64	1,00		
ATGRAPAR	0,64	0,40	1,00	
SOLDPAR	-0,10	-0,10	0,15	1,00

Table A9. Correlation matrix of the variables representing voluntary organizations and active political participation										
	RIUASEC	RIUASCU	ORGANIZ	COMIZIO	CORTEO	ATGRAPAR	SOLDPAR	SOLDASS	AMIVOL	AIUTOVOL
RIUASEC	1,00									
RIUASCU	0,56	1,00								
ORGANIZ	0,42	0,74	1,00							
COMIZIO	0,05	-0,31	-0,32	1,00						
CORTEO	0,35	-0,23	-0,13	0,64	1,00					
ATGRAPAR	0,19	0,07	0,31	0,57	0,44	1,00				
SOLDPAR	0,31	0,33	0,49	-0,04	0,07	0,46	1,00			
SOLDASS	0,63	0,71	0,77	-0,42	0,03	0,23	0,65	1,00		
AMIVOL	0,37	0,67	0,51	-0,73	-0,35	-0,25	0,22	0,75	1,00	
AIUTOVOL	0,24	0,26	0,03	-0,27	-0,07	-0,18	-0,17	0,21	0,34	1,00

Table A10. Indicators of civic awareness

Name	Description	Year	Sourse	Mean	St. Dev.
QUOTTG	People aged 11 and more reading newspapers everyday for every 100 people of the same area.	2000	ISTAT (2002c)	18,230	7,952
SIQUOT	People aged 11 and more reading newspapers for every 100 people of the same area.	2000	ISTAT (2002c)	57,540	12,128
AMIATT	People aged 6 and more who, when meeting friends, talk about current affairs and share their opinion, for every 100 people meeting friends of the same area.	2002	ISTAT (2004a)	27,465	4,382
DIBATT	People aged 14 and more having listened to a political debate in the 12 months before the interview, for every 100 people of the same area.	2002	ISTAT (2004a)	20,560	2,997
INFOPOTG	People aged 14 and more keeping themselves informed on politics everyday for every 100 people of the same area.	2002	ISTAT (2004)	34,495	7,286
NOINFOPO	People aged 14 and more never informing themselves on politics for every 100 people of the same area.	2002	ISTAT (2004)	26,105	7,736
NOPARPOL	People aged 14 and more never talking about politics for every 100 people of the same area.	2002	ISTAT (2004)	36,415	7,046
NOQUOT	People aged 11 and more not reading newspapers for every 100 people of the same area.	2000	ISTAT (2002c)	39,275	12,830
PARPOLTG	People aged 14 and more talking about politics everyday for every 100 people of the same area.	2002	ISTAT (2004a)	8,465	1,567
QUOTTG	People aged 11 and more reading newspapers everyday	2000	ISTAT	18,230	7,952

Table A11. Italian regions ranking based on civic awareness

Rank	Region	Factor scores	Contribution	Squared cosines
1	Emilia Romagna	-3,68	10,15	0,83
2	Trentino Alto Adige	-3,36	8,46	0,81
3	Friuli Venezia Giulia	-3,20	7,70	0,83
4	Toscana	-2,70	5,45	0,68
5	Liguria	-2,49	4,65	0,69
6	Veneto	-1,83	2,50	0,64
7	Lazio	-1,82	2,47	0,59
8	Lombardia	-1,25	1,17	0,51
9	Valle d'Aosta	-1,04	0,81	0,16
10	Sardegna	-1,00	0,76	0,40
11	Piemonte	-0,88	0,58	0,29
12	Marche	0,56	0,24	0,06
13	Umbria	0,74	0,42	0,48
14	Puglia	2,02	3,08	0,64
15	Abruzzo	2,35	4,13	0,87
16	Molise	2,41	4,35	0,53
17	Sicilia	3,64	9,91	0,95
18	Basilicata	3,75	10,55	0,94
19	Calabria	3,80	10,82	0,90
20	Campania	3,97	11,81	0,92

Table A12. Correlation matrix of variables representing civic awareness and political participation

	NOQUOT	SIQUOT	QUOTTG	COMIZIO	CORTEO	DIBATT	ATGRAPAR	SOLDPAR	PARPOLTG	NOPARPOL	INFOPOTG	NOINFOPO
NOQUOT	1,00											
SIQUOT	-0,99	1,00										
QUOTTG	-0,96	0,95	1,00									
COMIZIO	0,66	-0,67	-0,61	1,00								
CORTEO	0,25	-0,24	-0,21	0,64	1,00							
DIBATT	-0,26	0,27	0,33	0,22	0,63	1,00						
ATGRAPAR	0,22	-0,20	-0,18	0,56	0,45	0,28	1,00					
SOLDPAR	-0,49	0,47	0,45	-0,04	-0,04	0,55	0,13	1,00				
PARPOLTG	-0,48	0,49	0,54	-0,07	0,35	0,44	0,06	0,09	1,00			
NOPARPOL	0,86	-0,84	-0,82	0,50	0,11	-0,48	0,17	-0,61	-0,55	1,00		
INFOPOTG	-0,81	0,82	0,81	-0,56	-0,03	0,52	-0,01	0,42	0,54	-0,85	1,00	
NOINFOPO	0,86	-0,86	-0,83	0,61	0,13	-0,48	0,18	-0,52	-0,48	0,97	-0,93	1,00

Table A13. Factor loadings of active variables and factor-variables correlations resulting from the PCA on the entire dataset.					
Label variable	Axis 1	Axis 2	Axis 3	Axis 4	Axis 5
NOQUOT	-0,89	-0,27	-0,10	-0,08	-0,22
SIQUOT	0,90	0,27	0,12	0,11	0,19
QUOTTG	0,85	0,22	0,08	0,14	0,34
RIUASEC	0,55	-0,24	-0,12	0,34	-0,23
RIUASCU	0,73	-0,26	0,30	-0,08	-0,17
ORGANIZ	0,70	-0,50	0,25	-0,03	0,20
ASSPORT	0,70	-0,18	0,29	-0,14	0,05
COMIZIO	-0,62	-0,50	-0,27	0,34	-0,14
CORTEO	-0,22	-0,19	-0,33	0,80	-0,03
DIBATT	0,32	-0,27	-0,16	0,79	-0,04
ATGRAPAR	-0,03	-0,74	-0,09	0,38	0,08
SOLDPAR	0,49	-0,49	0,11	0,35	0,02
SOLDASS	0,89	-0,24	0,16	0,26	0,02
PARPOLTG	0,48	0,20	-0,53	0,44	-0,08
NOPARPOL	-0,92	-0,07	0,06	-0,14	0,13
INFOPOTG	0,95	0,01	0,05	0,25	-0,02
NOINFOPO	-0,94	-0,10	-0,04	-0,13	0,09
AMIATT	0,81	0,18	0,28	0,21	-0,09
AMIVOL	0,80	0,24	0,39	-0,08	0,04
NOPRARE	0,81	0,10	-0,20	0,30	0,20
SIPRARE	-0,73	0,09	0,24	-0,18	-0,37
INCAMI2S	0,34	-0,54	-0,18	-0,09	-0,37
SODDPAR	0,77	0,11	0,09	0,28	0,28
INCPARTG	-0,31	-0,16	0,38	-0,06	0,66
NOINCPAR	0,67	0,48	0,14	-0,05	-0,12
NOPARENT	0,53	0,12	-0,36	-0,07	0,36
MUM1KM	-0,94	-0,12	0,22	0,14	0,06
MUM16KM	0,93	-0,02	-0,19	-0,18	-0,01
FIG1KM	-0,62	0,07	0,64	0,29	0,02
FIG16KM	0,35	-0,41	-0,54	-0,51	-0,12
GIOBAM2S	-0,36	0,40	0,58	0,30	0,28
NOGIOBAM	0,85	0,04	-0,18	0,02	-0,18
PARVIC2S	0,10	-0,69	0,31	-0,23	0,27
NOPARVIC	-0,01	0,66	0,12	0,36	-0,15
PARCON2S	0,79	-0,48	0,20	-0,09	0,01
NOPARLCO	-0,62	0,46	0,20	0,04	-0,26
CENAF2S	0,76	0,03	0,40	0,04	-0,31
NOCENF	-0,86	-0,04	-0,13	0,21	0,18
BAR2S	0,71	-0,46	0,40	-0,10	-0,05
NOBAR	-0,71	0,38	-0,29	0,33	-0,05
MUBAR	0,61	0,29	0,63	0,03	-0,22
FAMSINGL	0,69	0,10	-0,48	-0,18	0,16
FAM5COMP	-0,91	-0,04	0,29	0,10	-0,06
COPPFIG	-0,91	0,01	0,26	0,07	0,00
COPNOFIG	0,85	-0,14	-0,27	-0,11	-0,04
FRATELTG	-0,78	-0,41	0,06	0,00	0,10
VMUMTG	-0,80	-0,40	-0,05	0,05	0,05
VFIGTG	-0,32	-0,59	0,42	0,29	-0,34
CONTPAR	0,53	-0,39	0,39	-0,07	-0,07
AIUTOVOL	0,28	0,17	0,05	-0,07	-0,64

Annex B. Technical Notes

I. Data Availability

All data are available on the web for purposes of replication. Multipurpose surveys carried out by the Italian National Institute of Statistics (ISTAT) can be downloaded from the ISTAT web site, at the address www.istat.it. Multivariate analyses have been performed using Decisia SPAD 5.6.0.

II. Notes on § 4.1, Social capital as informal networks of strong family ties

First ten eigenvalues resulting from the PCA on family social networks are presented in Table 1. Factor loadings and variables-factor correlations are reported in Table 2. They exhibit the same values in all of the PCAs performed in this paper because all the analyses are normed.

Table 1. First 10 eigenvalues resulting from the PCA on the family social networks dataset

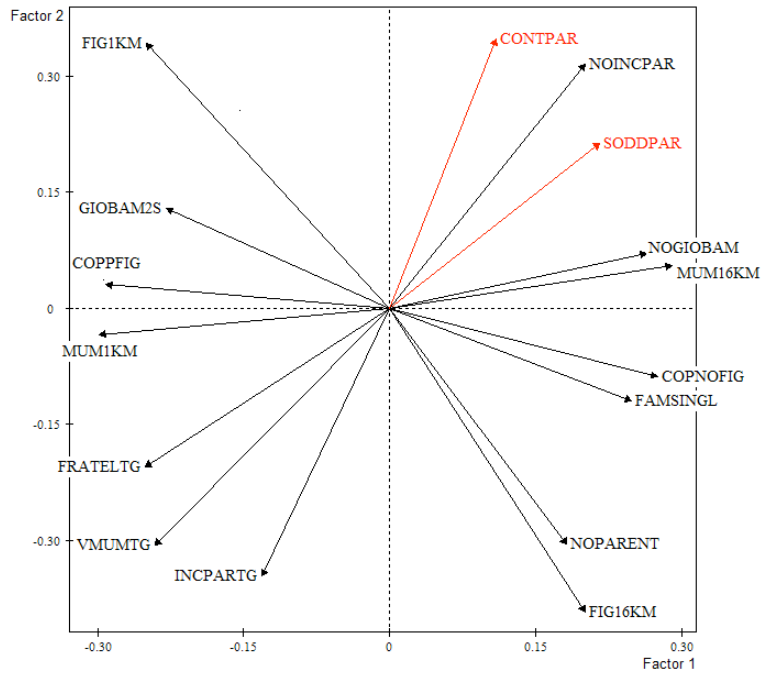
Number	Eigenvalue	Percentage	Cumulated Percentage
1	10,8159	60,09	60,09
2	1,8413	10,23	70,32
3	1,5601	8,67	78,99
4	1,1280	6,27	85,25
5	0,8243	4,58	89,83
6	0,5596	3,11	92,94
7	0,4202	2,33	95,27
8	0,3508	1,95	97,22
9	0,1523	0,85	98,07
10	0,1218	0,68	98,75

Table 2. Factor loadings and active variables-factors correlations

Label	Axis 1	Axis 2
SODDPAR	0,71	0,29
INCPARTG	-0,43	-0,47
NOINCPAR	0,66	0,43
NOPARENT	0,60	-0,41
MUM1KM	-0,98	-0,05
MUM16KM	0,95	0,07
FIG1KM	-0,82	0,46
FIG16KM	0,66	-0,53
GIOBAM2S	-0,75	0,18
NOGIOBAM	0,87	0,10
FAMSINGL	0,82	-0,16
FAM5COMP	-0,97	0,05
COPPFIG	-0,96	0,04
COPNOFIG	0,90	-0,12
FRATELTG	-0,83	-0,28
VMUMTG	-0,79	-0,42
VFIGTG	-0,50	0,35
CONTPAR	0,36	0,47

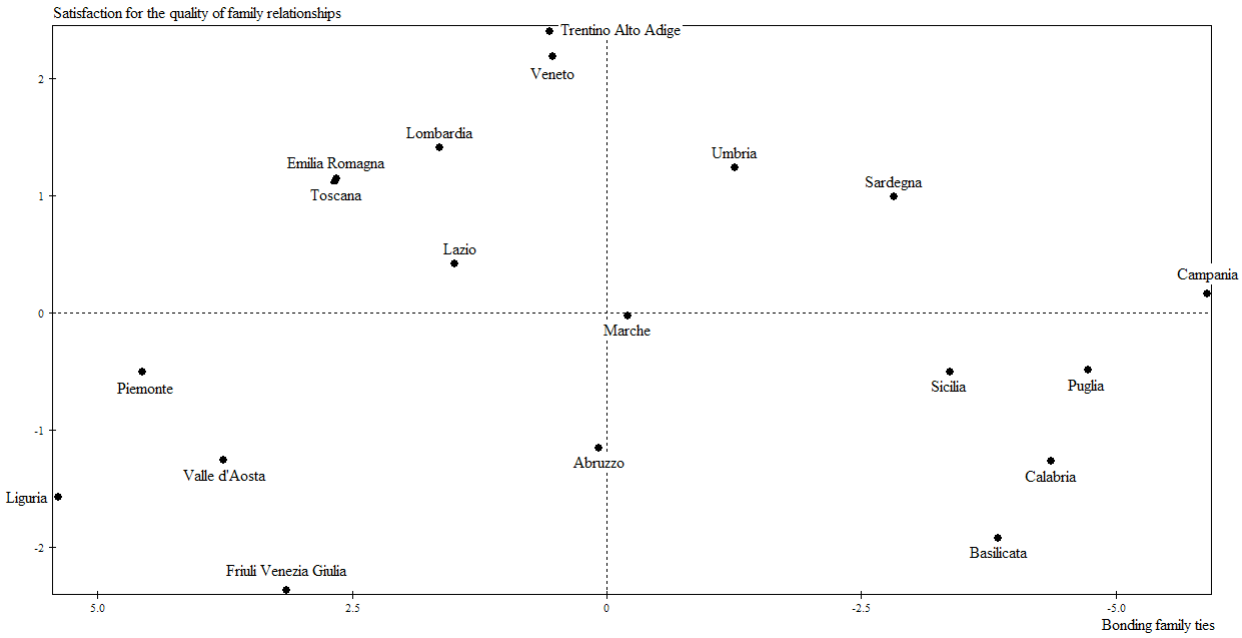
The correlation circle (Figure 1) allows an intuitive interpretation of the first factorial plan's meaning, and highlights the opposition between satisfaction for family relationships and propensity to count on relatives in case of need, on the one side, and indicators of spatial proximity and contacts frequency, on the other.

Figure 1. Section of the correlation circle resulting from the PCA on strong family ties



The corresponding scattergram of the Italian regions is presented in Figure 2. The horizontal simmetry is inverted to allow a more intuitive interpretation.

Figure 2. Scattergram of the italian regions resulting from the PCA on strong family ties



III. Notes on § 4.2, Social capital as informal networks of weak ties

Eigenvalues resulting from the PCA on informal weak ties among friends and neighboors are presented in Table 3. Factor loadings and variables-factors correlations are presented in Table 4.

Table 3. Eigenvalues resulting from the PCA on weak bridging ties

Number	Eigenvalue	Percentage	Cumulated percentage
1	5,8006	52,73	52,73
2	2,3069	20,97	73,70
3	0,8231	7,48	81,19
4	0,6478	5,89	87,08
5	0,5125	4,66	91,73
6	0,4125	3,75	95,48
7	0,2275	2,07	97,55
8	0,1232	1,12	98,67
9	0,0720	0,65	99,33
10	0,0457	0,42	99,74
11	0,0284	0,26	100,00

Table 4. Loadings of active variables on Axis 1 and active variables-factors correlations

Label variable	Axis 1
ASSPORT	0,81
INCAMI2S	0,49
PARVIC2S	0,28
NOPARVIC	-0,26
PARCON2S	0,89
NOPARLCO	-0,62
CENAF2S	0,84
NOCENF	-0,82
BAR2S	0,94
NOBAR	-0,89
MUCENSOC	0,38
MUBAR	0,72

IV. Notes on § 4.3, Social capital as voluntary organizations

Eigenvalues resulting from the PCA on indicators of voluntary organizations are presented in Table 8. Factor loadings and variables-factors correlations are presented in Table 9.

Table 8. Eigenvalues resulting from the PCA on formal associations dataset

Number	Eigenvalue	Percentage	Cumulated Percentage
1	3,5713	59,52	59,52
2	1,0182	16,97	76,49
3	0,6485	10,81	87,30
4	0,4025	6,71	94,01
5	0,2820	4,70	98,71
6	0,0775	1,29	100,00

Table 9. Loadings of active variables and active variables correlations with the first factor

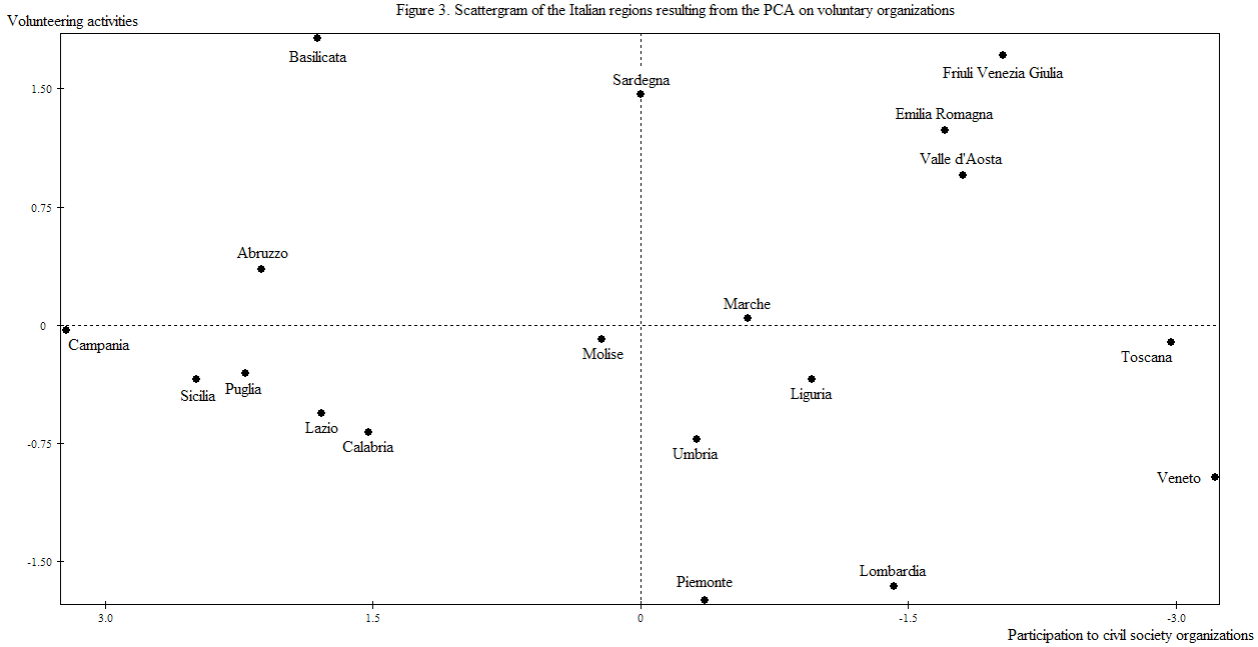
Label variable	Axis 1
RIUASEC	-0,70
RIUASCU	-0,89
ORGANIZ	-0,81
SOLDASS	-0,93
AMIVOL	-0,81
AIUTOVOL	-0,35

Trentino Alto Adige has been treated as an outlier. Its absolute contribution to the first axis would otherwise have accounted for 53,74 percent, slightly influencing the structure of relations among variables.

As pointed out in the paper, the PCA shows the complex nature of civil society, which reveals to be shaped at least by two major dimensions. The first one is represented by people propensity to carry out light forms of participation to civil society, like joining meetings and giving money to associations. The second one is given by people propensity to carry out volunteering activities "on the field", with the aim to give concrete help to disadvantaged people. Such a dimension, as

expressed by the variable AIUTOVOL, exhibits a weak positive correlation with all the other variables. It is of interest to rank the Italian regions also according to this more active form of social participation. The scattergram of the Italian regions given by the first factorial plan is therefore presented in Figure 3.

Figure 3. Scattergram of the Italian regions resulting from the PCA on voluntary organizations



V. Notes on § 4.4 Social capital as active political participation

Eigenvalues resulting from the PCA on active political participation are presented in Table 12. Factor loadings and variables-factors correlations are presented in Table 13.

Table 12. Eigenvalues resulting from the PCA on active political participation dataset

Number	Eigenvalue	Percentage	Cumulated Percentage
1	2,1351	53,38	53,38
2	1,0785	26,96	80,34
3	0,5341	13,35	93,69
4	0,2523	6,31	100,00

Table 13. Loadings of active variables and active variables-factors correlations

Label variable	Axis 1	Axis 2
COMIZIO	0,92	0,10
CORTEO	0,81	0,13
ATGRAPAR	0,80	-0,21
SOLDPAR	-0,05	-0,98

In the PCA on indicators of voluntary organizations and active political participation, Trentino Alto Adige has been treated as an outlier, due to its contribution to the first axis equal to 54,4 percent. Eigenvalues are reported in Table 14. and the correlation matrix is reported in Table 15. Factor loadings and variables correlations with the first two axes are shown in Table 16.

Table 14. Eigenvalues resulting from the PCA on voluntary organizations and active political participation (10 variables)

Number	Eigenvalue	Percentage	Cumulated Percentage
1	4,0971	40,97	40,97
2	2,5426	25,43	66,40
3	1,2521	12,52	78,92
4	0,6319	6,32	85,24
5	0,5959	5,96	91,20
6	0,3675	3,68	94,87
7	0,2439	2,44	97,31
8	0,1903	1,90	99,21
9	0,0533	0,53	99,75
10	0,0254	0,25	100,00

Table 15. Factor loadings and variables-factors correlations resulting from the PCA on voluntary organizations and active political participation (10 variables)

Label variable	Axis 1	Axis 2
RIUASEC	-0,61	0,41
RIUASCU	-0,86	0,03
ORGANIZ	-0,82	0,21
COMIZIO	0,55	0,74
CORTEO	0,21	0,74
ATGRAPAR	-0,07	0,85
SOLDPAR	-0,54	0,49
SOLDASS	-0,94	0,21
AMIVOL	-0,84	-0,37
AIUTOVOL	-0,30	-0,30

VI. Notes on § 4.5, Social capital as civic awareness

Eigenvalues resulting from the PCA on indicators of civic awareness are reported in Table 17. Factor loadings and variables-factors correlations are reporeted in Table 18.

Table 17. Eigenvalues resulting from the PCA on civic awareness

Number	Eigenvalue	Percentage	Cumulated Percentage
1	6,6657	74,06	74,06
2	1,0278	11,42	85,48
3	0,5967	6,63	92,11
4	0,2883	3,20	95,32
5	0,2212	2,46	97,77
6	0,1400	1,56	99,33
7	0,0466	0,52	99,85
8	0,0101	0,11	99,96
9	0,0036	0,04	100,00

Table 18. Loadings of active variables and active variables correlations with the first factor

Label variable	Axis 1
NOQUOT	0,94
SIQUOT	-0,94
QUOTTG	-0,93
DIBATT	-0,48
PARPOLTG	-0,61
NOPARPOL	0,94
INFOPOTG	-0,93
NOINFOPO	0,96
AMIATT	-0,87

VII. Notes on § 5. The empirical analysis on the entire dataset

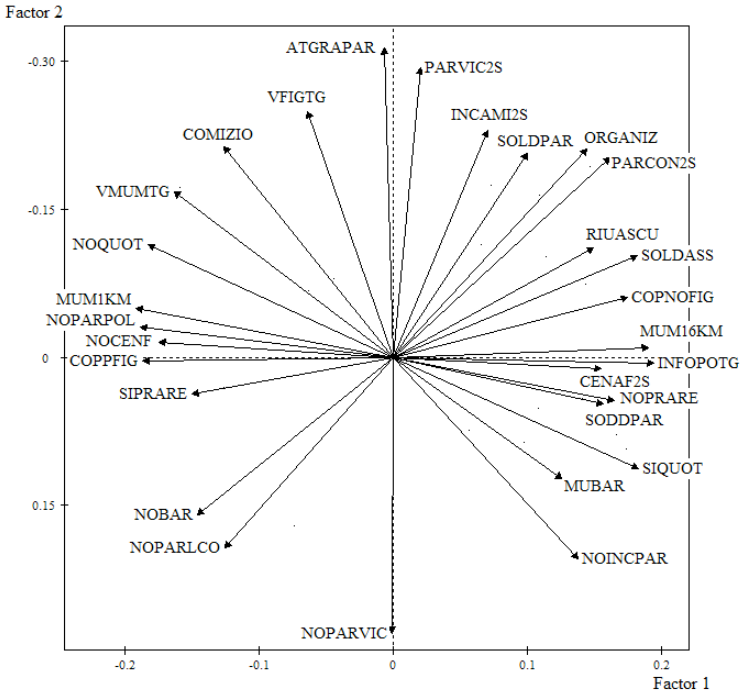
First ten eigenvalues resulting from the PCA on all of the five dimensions of social capital are reported in Table 19.

Table 19. First ten eigenvalues resulting from the PCA on the entire dataset (58 variables)

Number	Eigenvalue	Percentage	Cumulated Percentage
1	23,9685	47,94	47,94
2	5,5885	11,18	59,11
3	4,4402	8,88	67,99
4	3,4571	6,91	74,91
5	2,4214	4,84	79,75
6	2,1550	4,31	84,06
7	1,5539	3,11	87,17
8	1,2685	2,54	89,71
9	1,1080	2,22	91,92
10	0,8747	1,75	93,67

The correlation circle (Figure 4) points out the positive correlation between weak informal ties (e.g. the habit to meet friends in contexts like sport circles, bars, and music clubs) and the linking ties of voluntary organizations. A strong correlation emerges also between strong family ties and a scarce interest in politics and collective affairs.

Figure 4. Section of the correlation circle resulting from the PCA on the entire dataset



First ten eigenvalues resulting from the PCA on the four "structural" dimensions of social capital are reported in Table 20. Factor loadings and variables-factors correlations are reported in Table 21.

Table 20. First ten eigenvalues resulting from the PCA on the four "structural" dimensions of social capital

Number	Eigenvalue	Percentage	Cumulated Percentage
1	17,7481	44,37	44,37
2	4,9872	12,47	56,84
3	4,0549	10,14	66,98
4	2,4260	6,07	73,04
5	2,2100	5,52	78,57
6	1,8315	4,58	83,14
7	1,3949	3,49	86,63
8	1,1235	2,81	89,44
9	0,9067	2,27	91,71
10	0,7724	1,93	93,64

Table 21. Loadings of variables and variables' correlations with the first three axes

Label	Axis 1	Axis 2	Axis 3	Label	Axis 1	Axis 2	Axis 3
RIUASEC	0,56	-0,18	-0,05	FIG16KM	0,45	-0,29	-0,61
RIUASCU	0,75	-0,21	0,30	GIOBAM2S	-0,43	0,31	0,60
ORGANIZ	0,74	-0,46	0,22	NOGIOBAM	0,85	0,16	-0,13
ASSPORT	0,72	-0,13	0,27	PARVIC2S	0,19	-0,67	0,21
COMIZIO	-0,58	-0,55	-0,27	NOPARVIC	-0,10	0,61	0,22
CORTEO	-0,26	-0,23	-0,24	PARCON2S	0,83	-0,41	0,18
ATGRAPAR	0,01	-0,77	-0,11	NOPARLCO	-0,65	0,39	0,24
SOLDPAR	0,50	-0,47	0,12	CENAF2S	0,74	0,07	0,44
SOLDASS	0,88	-0,18	0,20	NOCENF	-0,85	-0,11	-0,13
AMIVOL	0,77	0,30	0,41	BAR2S	0,76	-0,40	0,38
NOPRARE	0,77	0,17	-0,14	NOBAR	-0,76	0,33	-0,23
SIPRARE	-0,72	0,03	0,21	MUBAR	0,57	0,30	0,69
INCAMI2S	0,40	-0,50	-0,19	FAMSINGL	0,69	0,19	-0,47
SODDPAR	0,74	0,17	0,14	FAM5COMP	-0,91	-0,15	0,28
INCPARTG	-0,29	-0,23	0,31	COPPFIG	-0,92	-0,11	0,24
NOINCPAR	0,64	0,57	0,21	COPNOFIG	0,88	-0,02	-0,27
NOPARENT	0,52	0,19	-0,36	VMUMTG	-0,75	-0,46	-0,09
MUM1KM	-0,94	-0,23	0,20	VFIGTG	-0,28	-0,65	0,42
MUM16KM	0,94	0,08	-0,18	CONTPAR	0,57	-0,35	0,39
FIG1KM	-0,66	-0,05	0,65	AIUTOVOL	0,29	0,25	0,10

VII. Notes on § 6, In search of a single synthetic indicator of social capital: a multiple factor analysis

First ten eigevalues resulting from the MFA on the four structural dimensions of social capital are reported in Table 22. Single variables coordinates on the first two axes are represented in Table 23.

Table 22. First ten eigenvalues of the MFA run on the narrow dataset

Number	Eigenvalue	Percentage	Cumulated percentage
1	2,9229	39,8177	39,8177
2	1,3385	18,2335	58,0511
3	0,6222	8,4767	66,5278
4	0,4926	6,7102	73,2380
5	0,4383	5,9702	79,2082
6	0,3352	4,5669	83,7751
7	0,2658	3,6206	87,3957
8	0,1939	2,6412	90,0368
9	0,1642	2,2367	92,2736
10	0,1427	1,9437	94,2172

Table 23. Coordinates and helps to the interprétation of the active variables

Groups	Variables	Coordinates		Contributions		Squared cosines	
		axis 1	axis 2	axis 1	axis 2	axis 1	axis 2
Group 1 Strong Family Ties (Normal PCA)	NOPRARE	0,7229	0,0564	1,8109	0,0241	0,5226	0,0032
	SIPRARE	-0,6551	-0,1719	1,4871	0,2237	0,4291	0,0296
	SODDPAR	0,7211	-0,0112	1,8019	0,0009	0,5200	0,0001
	INCPARTG	-0,2310	0,0830	0,1849	0,0522	0,0534	0,0069
	NOINCPAR	0,6386	-0,5114	1,4131	1,9795	0,4078	0,2616
	NOPARENT	0,4372	-0,0859	0,6624	0,0559	0,1911	0,0074
	MUM1KM	-0,8774	0,1345	2,6677	0,1370	0,7698	0,0181
	MUM16KM	0,8805	-0,0316	2,6865	0,0075	0,7752	0,0010
	FIG1KM	-0,5260	-0,0545	0,9587	0,0225	0,2767	0,0030
	FIG16KM	0,3283	0,2415	0,3735	0,4412	0,1078	0,0583
	GIOBAM2S	-0,2911	-0,3314	0,2937	0,8310	0,0848	0,1098
	NOGIOBAM	0,8042	-0,0323	2,2413	0,0079	0,6468	0,0010
	COPPFIG	-0,8619	0,0119	2,5744	0,0011	0,7429	0,0001
	COPNOFIG	0,8202	0,0962	2,3315	0,0701	0,6728	0,0093
	FRATELTG	-0,7213	0,3672	1,8030	1,0206	0,5203	0,1349
	VMUMTG	-0,7579	0,4064	1,9905	1,2499	0,5744	0,1652
	VFIGTG	-0,1673	0,5269	0,0970	2,1011	0,0280	0,2776
	CONTPAR	0,6090	0,2260	1,2852	0,3866	0,3709	0,0511
Group 2 Weak Bridging Ties (Normal PCA)	ASSPORT	0,7616	0,0570	3,2941	0,0404	0,5800	0,0033
	INCAMI2S	1,0000	0,3846	0,0908	0,8402	0,3121	0,1479
	NOINCAMI	0,6394	-0,4441	2,3222	2,4461	0,4089	0,1972
	PARVIC2S	0,2678	0,4174	0,4073	2,1609	0,0717	0,1742
	NOPARVIC	-0,1055	-0,3967	0,0632	1,9523	0,0111	0,1574
	PARCON2S	0,8475	0,3478	4,0797	1,5003	0,7183	0,1210
	NOPARLCO	-0,5987	-0,3977	2,0357	1,9622	0,3584	0,1582
	CENAF2S	0,8057	-0,0789	3,6872	0,0772	0,6492	0,0062
	NOCENF	-0,8703	0,1601	4,3016	0,3177	0,7573	0,0256
	BAR2S	0,8137	0,2992	3,7602	1,1104	0,6620	0,0895
	NOBAR	-0,7888	-0,1532	3,5341	0,2911	0,6222	0,0235
	MUBAR	0,6748	-0,3507	2,5861	1,5259	0,4553	0,1230
Group 3 Voluntary Organizations (Normal PCA)	RIUASEC	0,5223	0,3583	2,6132	2,6857	0,2728	0,1284
	RIUASCU	0,7980	0,1231	6,1009	0,3168	0,6369	0,0151
	ORGANIZ	0,7737	0,3625	5,7353	2,7496	0,5987	0,1314
	SOLDASS	0,9033	0,2696	7,8168	1,5201	0,8160	0,0727
	AMIVOL	0,8373	-0,3254	6,7169	2,2156	0,7011	0,1059
	AIUTOVOL	0,2880	-0,2606	0,7949	1,4208	0,0830	0,0679
Group 4 Active Political Participation (Normal PCA)	COMIZIO	-0,6396	0,6725	6,4575	15,5883	0,4092	0,4523
	CORTEO	-0,3296	0,5634	1,7147	10,9398	0,1086	0,3174
	ATGRAPAR	-0,0138	0,8900	0,0030	27,3002	0,0002	0,7921
	SOLDPAR	0,5323	0,5544	4,4720	10,5924	0,2833	0,3073